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MARKET ANALYSIS
PROGRAMME—EUROPE*

*LEADING VENDOR
PROFILES*

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EUROPEAN AND NORTH AMERICAN MARKET ANALYSIS

*Analysis of Information Services, Software and Systems Maintenance Markets
5-year Forecasts, Competitive and Trend Analysis*

- 15 Vertical Markets
- 9 Categories of Software and Services
- 7 Cross-Industry Markets
- The Worldwide Market (30 countries)

— EUROPEAN —

- Outsourcing
- Systems Integration
- Customer Services

— U.S. —

- Outsourcing
- Client/Server
- Systems Integration
- IT Vendor Analysis
- EDI / Electronic Commerce
- U.S. Federal Government IT Procurements

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COMPANY PROFILES

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Company Profiles

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COMPANY PROFILES

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Alcatel TITN Answare SA	10/93	France
Andersen Consulting	6/93	United States United Kingdom
AT&T Istel Limited	7/93	United Kingdom
AT&T NCR	12/93	United States
Axone SA	10/93	France
Borland International Inc.	6/93	United States France
BSO/Origin	6/93	The Netherlands
Cap Gemini Sogeti	12/93	France
Cap Volmace Group N.V.	10/93	The Netherlands
CISI	10/93	France
CMG (Computer Management Group) Ltd	6/93	United Kingdom

Computer Sciences Corporation	12/93	United States
ComputerVision Corporation	11/93	United States United Kingdom
Datev eG	12/93	Germany
Digital Equipment Corporation	12/93	United States
Dun & Bradstreet Software	12/93	United States
EDS	6/93	United Kingdom
Eritel	6/93	Spain
GE Information Services	7/93	Italy
Groupe Axime	10/93	France
Groupe UNILOG	12/93	France
GSI (Generale De Service Informatique)	6/93	France
Hewlett-Packard	10/93	United States Switzerland
ICL Plc	12/93	United Kingdom
Ing C Olivetti & C. S.P.A.	10/93	Italy
Intergraph Corporation	12/93	Netherlands United States
International Business Machines (IBM) Corporation	10/93	United States France
Logica plc	10/93	United Kingdom
Lotus Development Corporation (Corporate HQ) (International HQ)	6/93	United States United Kingdom
McDonnell Douglas Information Systems	6/93	United Kingdom

Microsoft Corporation	9/93	United States France
Novell Inc.	12/93	United States
Reuters Holdings Plc	6/93	United Kingdom
Raet N.V.	7/93	The Netherlands
SAP AG	9/93	Germany
Sema Group SA	6/93	France United Kingdom
SG2	7/93	France
Siemens Nixdorf Informationssysteme AG	1/94	Germany
Sligos	7/93	France
Software AG	10/93	Germany
Steria Group	12/93	France
Syntegra (formerly BT Customer Systems)	11/93	United Kingdom
Syseca	11/93	France
Telesytemes	4/93	France
Tietotehdas Oy	7/93	Finland
Unilog SA	12/93	France
Unisys Corporation	12/93	United States
WM-data	12/93	Sweden



COMPANY PROFILE

ACT GROUP PLC

ACT House
111 Hagley Road
Edgbaston
Birmingham B16 8LB
United Kingdom
Tel: +44 21 456 1234
Fax: +44 21 445 8427

Chairman: Roger Foster
Group MD: Mike Hart
Status: Public
Number of Employees:
(FYE 31/3/93) 2,113
Revenue (FYE 31/3/93): £153M

The Company

Founded with the name ACT in 1965, this company was known as Apricot Computers plc for some time. In May 1990, it changed its name to ACT Group plc.

The ACT Group is engaged in the development and supply of computer software, services and solutions mainly to the finance, healthcare, government and commerce markets.

In 1990 the Group's four year strategy was completed. This was to build its software and services activity to the point at which it could dispose of its computer hardware business. The result is a major U.K. group trading in the higher growth and more profitable areas of software and services, which has experienced a period of greater stability and consistent profit and revenue growth.

The company made a number of acquisitions in 1991 and 1992, through which it has significantly expanded its target markets. Most significant acquisitions were Quotient and the Kindle Group.

In early 1992 ACT launched a new division - Network SI to implement and manage complex networks. The new division has 75 employees.

Acquisition of BIS

In June 1993 ACT announced the purchase of the BIS Group of companies from NYNEX Corporation. BIS Group turnover in

1992 was £105.4m, (69% of ACT's own revenues,) and was split as follows:

43% Banking systems
39% Consultancy, solutions, training, systems operations
18% Integrated direct marketing services (Brann)

Financial Information

Exhibit A

**ACT Group Six-year Financial Summary
(FYE 31-03) (PSE Millions)**

YEAR	1988	1989	1990	1991	1992	1993
Revenue	85.1	105.8	140.7	*98.8	119.4	152.9
Annual Growth Rate	20%	24%	33%	(30%)	21%	28%
Profit before Taxes	8.2	6.0	8.0	12.7	17.0	20.5
Annual Growth (%)	105%	(27%)	33%	59%	34%	21%
Profit after Taxes	3.6	3.0	3.7	-	12.3	15.4
Annual Growth Rate	29%	(17%)	23%	-	-	22%
Earnings per Share	9.53p	6.22p	7.07p	9.50p	9.90p	11.33p
Annual Growth Rate	89%	(35%)	14%	34%	14%	14%

Source: ACT Group

*The decrease in 1991 turnover is attributed to the sale of Apricot Computer Division.

Market Analysis

Exhibit B

**Two-year Market Analysis by Activity
(Revenues PSE Millions)**

ACTIVITY	1992 REVENUES	1992 SHARE	1993 REVENUES	1993 SHARE
Financial Software Products	48.6	41%	76.2	50%
UK Software & Services	70.8	59%	76.7	50%
TOTAL	119.4	100%	152.9	100%

Source: ACT Group

Exhibit C

Two-year Market Analysis by Geographic Area
(Revenues PSE Millions)

COUNTRY	1992 REVENUE	1992 SHARE	1993 REVENUE	1993 SHARE
U.K.	101.5	85%	119.7	78%
Eire	3.0	2.5%	2.6	2%
France	1.8	1.5%	3.9	3%
Germany	0.9	0.8%	0.2	-%
Netherlands	2.2	1.8%	1.8	1%
Scandinavia	0.8	0.8%	2.2	1%
Rest of Europe	1.8	1.5%	7.4	5%
Africa & Middle East	1.9	1.6%	7.4	5%
Australasia & Far East	3.1	2.6%	3.2	2%
North America	2.3	1.9%	4.5	3%
Other	> 1	-	0	-
TOTAL	119.4	100%	152.9	100%

Source: ACT Group

Exhibits D to F give INPUT's estimates of the likely revenue mix for calendar 1993, combining BIS Group into ACT.

Exhibit D

**Estimated Revenues by Industry Sector, Software and Services, Europe
ACT, 1993**

	REVENUES (\$ MILLIONS)	SHARE (%)
Industry Sectors:		
Discrete Manufacturing	14	5
Process Manufacturing	14	5
Utilities	6	2
Telecommunications	6	2
Retail Distribution	4	1
Wholesale Distribution	13	5
Banking and Finance	125	47
Insurance	9	3
Healthcare	19	7
Local Government	16	6
National Government	29	11
Business Services	5	2
Other Industries	2	1
Systems Software Products	8	3
Total Software and Services	268	100

Source: INPUT Estimates (ACT including BIS)

Exhibit E

**Estimated Revenues by Delivery Mode, Software and Services, Europe
ACT, 1993**

DELIVERY MODE	REVENUES (\$ MILLIONS)	SHARE (%)
Systems Software Products	8	2
Application Software Products	106	30
Turnkey Systems	27	8
Professional Services	72	21
Systems Integration	40	11
Systems Operations	15	4
Total Software and Services	268	77
Equipment Services	67	19
Total Information Services	335	96
Equipment/Other Revenues	15	4
Total European Revenues	350	100

Source: INPUT Estimates (ACT including BIS)

Exhibit F

**Estimated Revenues by Country, Information Services, Europe
ACT, 1993**

COUNTRY	REVENUES (\$ MILLIONS)	SHARE (%)
France	10	3
Germany	5	2
U.K.	270	81
Italy	0	0
Netherlands	4	1
Belgium/Lux	0	0
Spain	0	0
Switzerland	0	0
Austria	0	0
Sweden	5	2
Denmark	0	0
Norway	0	0
Finland	0	0
Ireland	6	2
Portugal	0	0
Greece	0	0
Eastern Europe	2	1
Europe Balance	29	9
Total Information Services	333	100

Source: INPUT Estimates (ACT including BIS)

Organisation

November 1993: The group operates highly focused companies mainly in two divisions, each with about 1,700 staff:

Information Systems Division

ACT Business Systems
 ACT Computer Support
 ACT Cablestream
 ACT Medisys
 ACT Sigmex
 ACT Managed Services
 ACT Networks SI
 BIS Products
 BIS Training

Financial Services Division

ACT Financial Systems
 ACT Kindle
 BIS Banking Systems

In addition the Brann Direct Marketing unit operates independently.

Exhibit F

Key Executives

NAME	POSITION
Roger Foster	Chairman
Mike Hart	Group MD
Brian Whitty	Group Finance Director
Peter Oldershaw	Commercial Director
Chris Winn	Director

Source ACT November 93

The company's major shareholders and principal subsidiaries (at 31/3/93) are listed in Exhibits G and H.

Exhibit G

Shareholders with Holdings larger than 3%

SHAREHOLDER	HOLDING
Singer & Friedlander Group Plc	13.57%
Gartmore Investment Management Ltd	6.01%
M.A. Kilduff Esq	4.27%
Scottish Amicable Life Assurance Society	3.90%
Robert Fleming Holdings Ltd	3.90%
Fidelity Investments	6.08%
Prudential Corporation	3.63%
(Others	58.64%)

Source ACT 92/93 Annual Report

Exhibit H

Principal Subsidiaries

SUBSIDIARY	COUNTRY	% OWNED
Software Products and Associated Services:		
ACT Financial Systems Ltd	U.K.	100
Quotient plc*	U.K.	100
ACT Financial Systems	Australia	100
Quotient France SA*	France	60
ACT Financial		
Systems Software GmbH*	Germany	100
ACT Financial Systems Ltd*	Japan	100
ACT Financial Systems Inc.*	U.S.A	100
NMW Computers plc*	U.K.	100
Crisis Management		
Services Ltd*	U.K.	100
ACT Kindle Ltd	Eire	100
ACT Kindle Software Ltd*	Eire	100
ACT Kindle UK Ltd*	U.K.	100
Kindle Software Pte Ltd*	Singapore	100
ACT Kindle Bahrain		
Software WLL*	Bahrain	100
Systems Integration and Support Services:		
ACT Cablestream Ltd*	U.K.	100
ACT Computer Support Ltd	U.K.	100
ACT Network SI Ltd	U.K.	100
DDT Maintenance		
(Ireland) Ltd	Eire	100
ACT Logsys Ltd*	U.K.	100
ACT Sigmex Ltd	U.K.	100
ACT Sigmex B.V.*	Netherlands	100
ACT Medisys Ltd*	U.K.	100
ACT Stemmm Ltd*	U.K.	100
ACT Medax Ltd*	U.K.	100

* Held through subsidiary undertakings.

Source: ACT 92/93 Annual Report

In March 1993, the ACT Group employed 2,113 staff deployed as in Exhibit I.

Exhibit I

1993 EMPLOYEE ANALYSIS

ACTIVITY	NUMBER OF EMPLOYEES
Financial Software Products	998
Systems Integration and Support Services	1,093
Central Services	22
TOTAL	2,113

*Source ACT***Acquisition/
Divestment History****1989**

- Acquired 100% of the DDT Group plc for about £7m. DDT's business was third party maintenance.
- Acquired 100% of Logical Systems International Ltd (LSI) for an initial £750,000 with up to £300,000 in addition, based on subsequent trading performance. LSI marketed software in public sector markets.
- Acquired ITL - Information Technology plc - for of about £12.6m. ITL was a computer manufacturing group engaged in systems integration, systems and software for the healthcare market, maintenance and networking.

1990

- Sold computer hardware division to Mitsubishi Electric Corporation for £39m cash.

1991

- Acquired Quotient, the UK-based international financial software business, for £27m. Quotient had sales in 1990 of £22.4m and employed 370. Quotient has been integrated with ACT's financial services operations and has strengthened its activities with an extensive set of applications products and an international sales network.
- Acquired, for £2m, Stemm Computing, supplier of operational software to hospital departments.

- Acquired the Kindle Group for £342m.

1992

- Acquired Medical Computer Services Ltd, a supplier of software packages to the UK private health sector.
- Acquired, for £3.8m cash, NMW Computers, specialists in software and services for the UK securities business.

1993

- Acquired BIS (details elsewhere in this profile.)

**Recent Sales
and Projects**

Examples of recent client contracts are as follows:

- *Hydro-Quebec, Canada*: ACT Financial Systems to supply CMARK package to process London Metal Exchange option contracts for risk management.
- *Ivory & Sime, Edinburgh*: ACT Financial Systems to supply MOMENTUM package for front office processing
- *Central Bank of the South, Alabama*: ACT Financial Systems to supply CITYDESK for its investment division
- *Arab National Bank, Saudi Arabia*: ACT Kindle to supply Bankmaster and other software for 120 branches.
- *Bank of N T Butterfield & Son, Bermuda*: ACT Kindle to supply Bankmaster to automate overseas banking operations in London and elsewhere.
- *Hilton International*: ACT Network Si to supply, install, integrate, support computer equipment at 35 U.K. hotels.
- *Costain Group plc*: ACT Network Si to provide outsourcing, software, hardware, networking support and inventory/asset management at 150 U.K. sites.
- *Leeds City Council, U.K.*: ACT Cablestream to provide connectivity for five departmental LANs
- *IT Services Agency of U.K. Department of Social Security*: ACT Logsys to advise on open systems telecommunications strategy development.

- *Chevron U.K.*: ACT Cablestream to implement latest phase of network linking applications between sites.
- *National Rivers Authority, U.K.*: ACT Logsys to form part of a team carrying out national feasibility study into office systems.

Key Products and Services

Before the acquisition of BIS ACT Group was organised in six business divisions as described first below. As indicated under "Organisation" above, the BIS units - whose activities are also described below - have been integrated into one of two major divisions, with the exception of Brann Direct Marketing which operates independently.

ACT Units pre-BIS:

- ACT Logsys Ltd
- ACT Financial Systems Ltd
- ACT Kindle Ltd
- ACT Medisys Ltd
- ACT Cablestream Ltd
- ACT Computer Support Ltd

ACT Logsys Ltd

Supplier of open systems based solutions to the public sector with major customers such as The Civil Aviation Authority, Ministry of Defence, NATO and the RAF. Its services:

General

Consultancy, systems design and implementation, project management and quality assurance.

Open Systems Centre

Integrated solutions for local government, defence administration and major contractors, while the

Advanced Systems Centre

Specialist resource for the operations side of the defence sector.

The Government and Commercial Systems Centre

Open systems and integration services for the Government and selected private sector accounts.

ACT Sigmex

Specialist graphics division offering integration and graphical solutions.

Alliances

To increase its access to key technologies ACT has entered into strategic agreements with a number of companies, such as RETIX for the supply of OSI communication and networking products.

ACT Financial Systems Ltd

Among the leading suppliers of software, services and consultancy to the financial services sector in the U.K. and internationally. Pursues a hardware-independent product strategy. Develops, markets and supports sophisticated software and services for investment management, banking, insurance, dealing and retail finance.

Clients include the major clearing banks, leading pension funds, stockbrokers, building societies, unit trust management companies, insurance principals and intermediaries.

The acquisition of Quotient plc has added a wide range of complementary, high value-added products, a large "blue chip" customer base and offices in the world's major financial centres.

ACT Kindle Ltd

Formed in 1979 and acquired by ACT in December 1991. Specialises in designing, marketing and supporting wholesale and retail banking software packages in 55 countries.

Sells direct from Dublin, London, Singapore and Bahrain and through third parties including distributors and hardware manufacturers with which ACT Kindle has porting and co-operative marketing agreements.

ACT Medisys Ltd

Supplies products and services to cover all aspects of a hospital's administrative and clinician operations. Independent of computer manufacturers and committed to open software solutions.

Provides IT consultancy, systems integration, training and support services for the healthcare sector, including 59 National Health Service Districts.

Developed VISION, a 4GL database system which permits easy development of information processing in acute mixed speciality hospitals.

In August 1991 acquired Stemm Computing, thus substantially increasing product offerings in the Hospital Information Support Systems (HISS) market.

The May 1992 acquisition of Medical Computer Services (MCS) gives a leading UK position to in the supply of software to private hospitals and a further platform for international expansion.

ACT Cablestream Ltd

Specialises in the design and implementation of standards based corporate networks, particularly in the automotive, petrochemical industries, and the manufacturing, finance and public sectors. Clients include Shell, BP, Ford, Peugeot, Rolls Royce, British Telecom and the Bank of England.

Offers a full range of professional services, including consultancy, network design and installation, project management, support and maintenance.

ACT Computer Support Ltd

ACT Computer Support claims to be the U.K.'s second largest third party maintenance company.

From a base of multi-vendor microcomputer services, the company has added a full minicomputer maintenance facility and developed a wide range of complementary network, UNIX and communications services.

Recently expanded its TPM business with a number of small, cost effective acquisitions, to increase the customer base to more than 20,000.

In January 1992 ACT launched Network SI, a new division supplying network management services for major corporations and local authorities.

BIS Units brought into ACT Group

BIS comprised three operating units:

- BIS Banking Systems
- BIS Information Systems
- Brann Direct Marketing

Banking Systems - (43 % of 1992 turnover)

Provides software systems - with related services and maintenance - to international banks, typically single and multiple branch operations in the world's major financial centres.

Main product is Midas, a software system, with more than 40 modules which address specific banking functions, including capital markets, trade finance, risk management, treasury and management information systems. Launched in 1975, rapidly accepted, the Midas range has operated on IBM platforms (IBM 32, 36, 38 and AS/400). More than 60 bank sites worldwide have already committed to the latest version, Midas ABS Release 10.

Banking Systems operates from 15 international locations, with more than 500 banking clients in 70 countries and more than 600 staff. Operations include a low-cost centre in the Philippines for core product development.

Information Systems - (39% of 1992 turnover)

Comprises three divisions with a total of about 590 staff: Consultancy and Solutions, Training, and Systems Operations.

Consultancy and Solutions: Provides strategic direction and advice on IT principally in the government, finance and utility sectors. Offices throughout the U.K.

BIS Training: One of the largest IT trainers in the UK. Specialises in IT and management education, for over 8,000 delegates a year.

Systems Operations: Offers a range of IT facilities management and outsourcing services, manages customers' datacentres and computer operations, and runs eight datacentres in the UK.

Brann Direct Marketing- (18% of 1992 turnover)

One of the leading providers of integrated direct marketing services in the UK. Devises direct marketing strategies, produces direct mailing programmes, manages sales and marketing data and telephone customer-monitoring programmes. An autonomous unit with about 380 people in three offices.

**Company
Strategies****(a) Company Direction**

ACT Group's ambition is to become an international company. By 92/93 year end it expected over 20% of sales to arise outside the U.K. And the financial figures were in line with expectation. Also some 17% of staff were based overseas in nine offices.

ACT's international strategy is led by sales of its software packages and related services, principally in the financial markets. Overall this line of business accounts for 50% of revenues and 75% of profits.

The acquisition of The BIS Group expands the offerings available from ACT, particularly in the financial software area, and reinforces the expansion of overseas business.

The acquisition is seen as a unique opportunity for ACT, enabling it to become a leading provider of financial software products worldwide and to build a significant presence in software services in the UK.

By combining the complementary product and market strengths of ACT Kindle, ACT Financial Systems and BIS Banking Systems, ACT becomes one of the world's largest financial software products groups and will be well placed to build upon its existing strong market presence overseas.

The operations of ACT Kindle and BIS Banking Systems are complementary, as Midas products operate principally on IBM proprietary platforms, whereas ACT Kindle supplies open solutions. BIS Banking Systems' customers have tended to be in developed countries, whereas ACT Kindle is stronger in emerging economies.

With its emphasis on government and utilities, BIS Information Systems complements ACT Logsys and their combination establishes - as ACT sees it - a major presence in software services in the UK.

ACT runs clearly focused business units operating with a substantial degree of autonomy. Each concentrates on a particular market, or area of expertise. The resulting profit margins seem satisfactory. Total 1993 profits for the group again increased.

Post BIS the same management philosophy seems to apply but now with a grouping of like companies into two divisions. And

ACT's management has indicated that not all BIS companies will be retained. It intends to dispose of certain businesses that are not compatible with a strategy based on financial software products and on software and services.

Overall the group's main markets will continue to be the finance market, healthcare and public sectors, whilst it will continue to provide systems integration and support services to the wider IT market.

(b) Strengths and Weaknesses

ACT Group's main strength lies in its continued focus on, and its expanding range of products and services for its target markets.

In 1991 and 1992 the company made a number of strategic acquisitions, most notably in the finance sector with Quotient and Kindle Group. Both companies have software products which enhance and expand the existing ACT range.

In addition, the acquired companies have ownership of their software products thus the group now owns the intellectual property rights to an increasing list of software products. Certainly, control of its own software is seen as a core asset to ACT.

In fact, ACT expects two-thirds of group profit in the current year to be generated directly or indirectly from the intellectual property rights to software owned by the group.

ACT has a strong presence in the financial sector, particularly in the UK. Over the past few years the company has expanded from a base of three major UK based product lines to ten products addressing seven international markets. This process has been accelerated by the international networks of Quotient plc and BIS financial systems.

ACT has also improved its presence in the health sector with the addition of Medical Computer Services' private sector hospital software.

ACT Group's main weakness is its lack of international revenues. Despite its international strategy, the company has yet to prove itself as a major international player in its target markets. In 1993, 80% of revenues were still derived from the UK.

(c) Conclusions

ACT Group has performed well in 1993 at a time when other software and service vendors are showing declining profits, or losses.

The company values ownership of software products highly and investment in development is currently at a level of over £12m per annum.

ACT's policy of acquiring companies whose products, services and personnel can be integrated with and are beneficial to its core subsidiaries, has proved to be successful.

It cannot be doubted that the company's recent acquisitions have been anything but strategic in broadening the groups product range and expanding its markets geographically.

The company is clearly intent on internationalisation but the challenge will be in actually obtaining a substantial amount of revenue from its offices outside of the UK.

COMPANY PROFILE

ANDERSEN CONSULTING

Arthur Andersen & Co., S.C.
69 West Washington Street
Chicago, IL 60602
(312) 580-0069

Managing Partner: George T. Shaheen
Status: Partnership operating world-wide
Total Consultants: 22,000
Total Personnel: 26,730
Revenue: (FYE 31-12-92)
\$2.72 billion

ANDERSEN CONSULTING (EUROPE)

2 Arundel Street
London WC2R 3LT
England
Tel: +44 71 438 5000
Fax: +44 71 831 1133

Managing Partner: Vernon Ellis
Total Consultants: 9,834
Total Personnel: 11,245
European Revenue: \$ 1.1 billion

The Company

Andersen Consulting was formed, as a distinct world-wide business unit within the Arthur Andersen world-wide organisation, in 1989. The original firm was founded in the U.S. in 1913 and entered the information services business in 1952.

The coordinating entity of the Arthur Andersen World-wide Organisation is Arthur Andersen & Co., S.C., based in Geneva, Switzerland. It includes all member firms and their related entities. This world-wide organisation serves clients through two business units: Arthur Andersen for audit and business advisory, tax and corporate speciality services; and Andersen Consulting for strategic services, integration services (systems integration and systems management), information technology consulting and change management services.

Andersen Consulting's European operations also co-ordinate markets in the Middle East, India and Africa.

Each member firm is privately owned and controlled by the partners in the country in which it operates. Member firms provide uniform professional training, share practice methodologies and technology, and coordinate their operations to eliminate barriers to serving clients.

The European business has expanded rapidly in recent years almost entirely through organic growth.

Andersen Consulting offers management and technology consulting to clients in nearly every business and governmental sector. The organisation helps clients use information technology competitively in all phases of their management activities - strategic, operations and financial.

Andersen Consulting believes it can ultimately help its clients "re-engineer" or rethink the way they do business - a process, the firm claims, that can lead to business integration, or the integration of technology, strategy, operations and people.

Andersen Consulting offers its services through the following service lines:

- Systems Management, including operations and network services, facilities management, applications management and backup/recovery services
- Systems Integration, including systems design, building, integration and implementation
- Strategic Services, including competitive and market strategy, organisation and change strategy, business operations strategy, and information and technology strategy
- Change Management Services, including organisation change, technology assimilation, knowledge transfer and quality management.

Andersen Consulting also offers manufacturing and logistics applications software products and FOUNDATION, a computer-aided software engineering (CASE) toolset.

Andersen Consulting currently serves clients through 151 offices in 46 countries. The organisation includes more than 22,000 consultants world-wide.

Andersen Consulting's fiscal 1991 world-wide revenue reached \$2.26 billion, a 20% increase over 1990 revenue of \$1.88 billion. 1992 saw a further 20% increase to \$2.72 billion.

Organisation Structure

In the 1986-1987 time period, a number of Arthur Andersen & Co. senior consulting partners approached Duane Kulberg, AA's former CEO, to lobby for a change in the structure of the firm that would facilitate the growth of the consulting side of the business. They argued that the traditional "partnership" structure with practice office acceptability was inappropriate to a business with an increasing national and international focus. The result was the organisational change that created Andersen Consulting.

In 1987, the consulting partners in local offices began to report through a parallel line of management of regional and national consulting partners. At a national level, the consulting practice still reported to the Arthur Andersen practice head in that country - more often than not, with a background of audit. At the same time, a strengthened dotted-line relationship was created between the country consulting heads (or regional consulting heads in the U.S.) and the Consulting Managing Partner in Chicago. This move strengthened the consulting practice significantly.

Andersen Consulting now manages and delivers its services through the matrix structure depicted in Exhibit A.

Andersen Consulting — Organisation Diagram of Senior Management

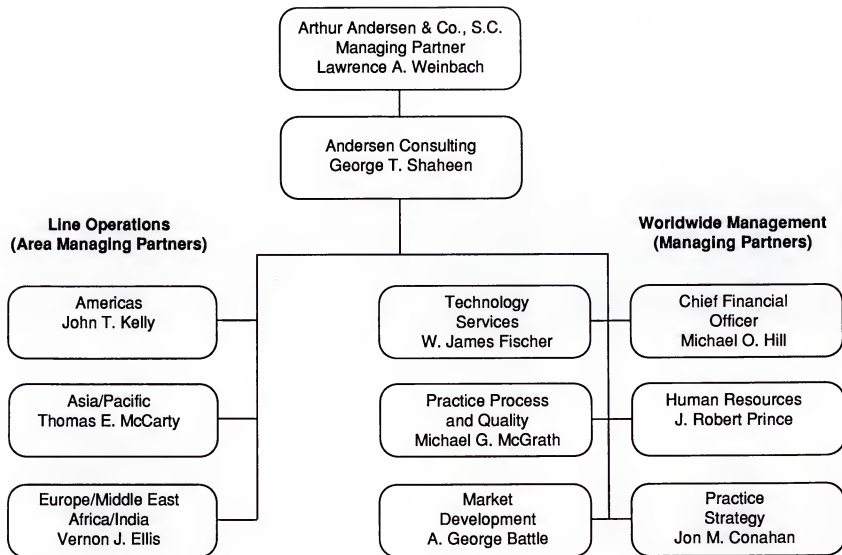


Exhibit A

ANDERSEN CONSULTING

INPUT

Based on INPUT's interviews with Andersen Consulting, responsibilities are distributed in accordance with Exhibit B, which compares how major responsibilities are managed within the commercial and federal organisations, respectively. A "C" indicates that the responsibility for the activity in question is primarily centralised, a "D" means decentralised, and a "B" indicates that the responsibility is shared by both.

Exhibit B

**Centralisation/Decentralisation of SI Business Function
Andersen Consulting**

RESPONSIBILITIES	COMMERCIAL	FEDERAL
Strategy and long-range planning	C	C
Marketing and promotion	B	C
Account management/sales	D	D
Contract review/approval	B	C
Project management/control	D	D
Implementation/development	D	D
Hardware/software acquisition	B	B
Systems operations (if applicable)	D	D

C = Centralised, D = Decentralised, B = Both

Centralised groups handle marketing, risk management assessment insurance, national contract purchasing and other activities. Local offices provide the sales emphasis and most of the technical professionals necessary for systems integration projects.

Andersen Consulting has established a number of Systems Operations, Advanced Technology and Business Integration Centres to support its activities.

- There are five Systems Operations Centres, which are large mainframe computer facilities staffed with project teams to run the day-to-day computer operations for an organisation. These centres are located in Chicago, Dallas, London, Toronto and Stamford (CT).
- Advanced Technology Centres are staffed with technical experts and project managers who use workstations and network PCs connected to these centres for the automation of the application development process for clients. Advanced Technology Centres

are located in Chicago, Dallas, Madrid, Manila and Stamford (CT).

- Andersen Consulting currently has four sites for its Business Integration Centres which specialise in industry- and function-specific technology. These centres serve as facilities where industry project teams from around the world build and demonstrate visions of the future through full-scale working technology exhibits (e.g., a factory floor or hospital of the future).

In 1989, Andersen Consulting reported a full-time world-wide IS practice staff of 18,000. INPUT estimated that 7,150 of the 11,000 individuals involved directly in the U.S. information systems consulting practice were directly involved in the SI practice. This number is based on the percentage of 1989 U.S. systems integration revenues. Exhibit C gives an indication of the distribution of resources between various SI-related activities.

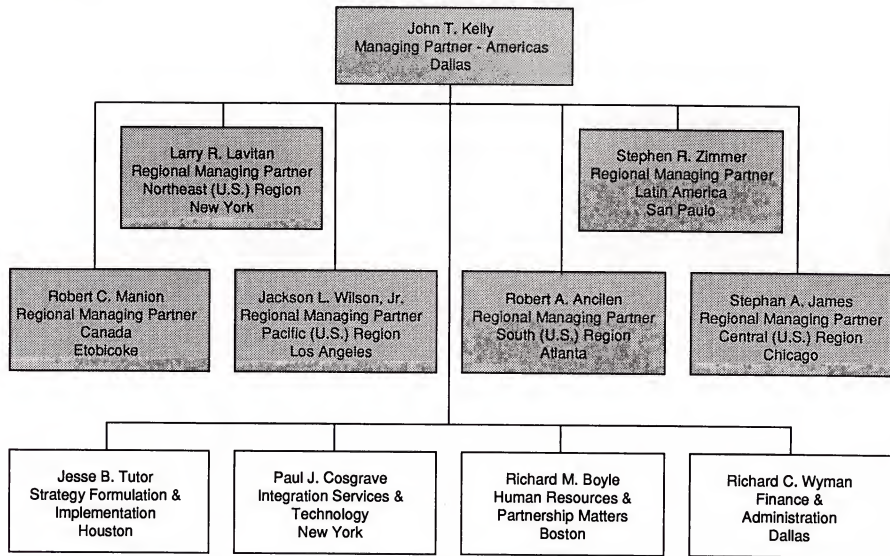
Exhibit C

Distribution of SI Business Personnel
Andersen Consulting

Capability	Percent
Management, strategy, planning, marketing	1
Legal/contract administration, finance	1
Project management and administration	5
Design/development/implementation	83
Hardware/software evaluation/acquisition	5
Hardware engineering	1
Sales	4

The matrix structure employed by Andersen Consulting in the U.S. is shown in Exhibit D, and that for Europe in Exhibit E.

Andersen Consulting — Americas Operations*



* Shaded boxes indicate line operations. All others are classified under worldwide management.

Exhibit D

ANDERSEN CONSULTING

INPUT

Andersen Consulting — EMEA

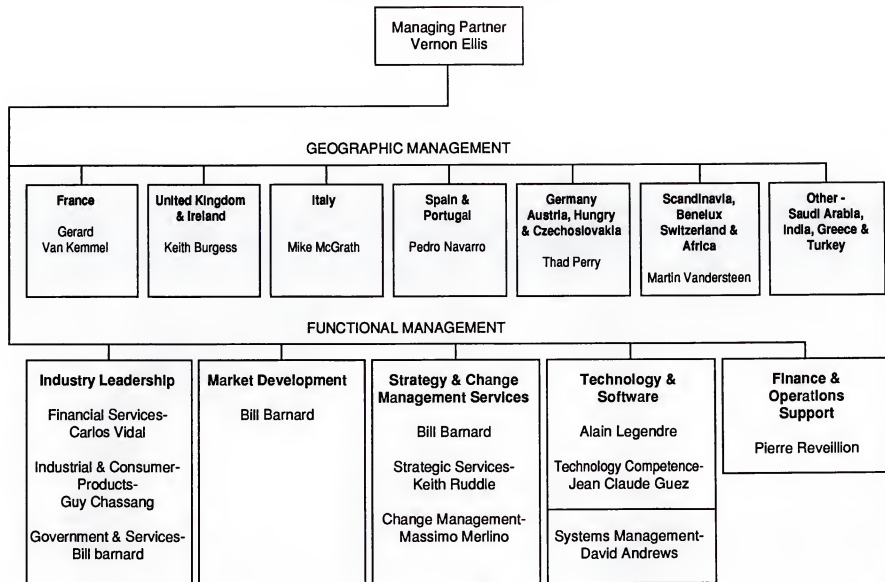


Exhibit E

ANDERSEN CONSULTING

INPUT

Andersen Consulting's headcount for Europe is shown in Exhibit F.

Exhibit F

three-year Professional Headcount (FYE 31/12/1992)

	1990	1991	1992
EUROPE TOTAL	7,510	8,935	9,834

Andersen Consulting has maintained this growth almost exclusively through organic growth, with a firm policy of graduate recruitment and staff development. However they still have to recruit in first class experienced consultants for each market sector, and there are signs that this could become increasingly difficult. As the firm takes a larger and larger market share in its chosen sectors, so it is seeking an ever higher proportion of the available skill pool.

Andersen Consulting's services and products are offered through six major practices (the classifications are not specialized, but serve to organise Andersen Consulting's varied industry work). Each of the following practices is headed by a managing partner and staffed with consulting specialists who have developed industry-specific expertise:

- Financial Services (Financial Markets, Insurance, Retail Financial Services)
- Government
- Health care
- Products (Aerospace and Defense, Airlines, Discrete/Repetitive Manufacturing, Energy, Food/Consumer Packaged Goods, General Retail and Wholesale Distribution and Process Manufacturing)
- Telecom Industry Group
- Utilities.

Andersen Consulting invested \$157 million (\$7,200 per consultant) on training during fiscal 1991.

Through the Professional Education Division, more than 250 courses are available to each Andersen Consulting consultant. By the time a consultant reaches the associate partner level, he or she will have put in more than 1,000 hours of training.

- The St. Charles (IL) Centre for Professional Education is the organisation's hub for internal training that has 120 classrooms accommodating more than 2,000 participants.
- Other world-wide training locations include Manila, Philippines, Singapore and Veldhoven (the Netherlands).

Acquisition History

The European business has expanded rapidly in recent years almost entirely through organic growth. Several small acquisitions have been completed in the last four years to add specialist skills and products. These include Computer Management (Norway), CMC (Spain), Rossmore Warwick (U.K.) and RPS (France).

In more detail, Andersen Consulting's recent acquisitions have been as follows:

- In September 1989, Andersen Consulting acquired Rossmore Warwick, a 25-30 person British engineering firm that helps design new factories and new process lines.
- In July 1989, Andersen Consulting acquired Courseware, Inc. of San Diego (CA). Terms of the acquisition were not disclosed.
 - Courseware provides computer-based training and training support services to clients in insurance, data processing, communications, real estate, defense, aerospace and travel, as well as state and federal government. The company had 60 employees at the time of the acquisition and 1988 gross fees of \$5.2 million.
 - The operations of Courseware have been merged into Andersen Consulting's Change Management Services (CMS) practice.
- In January 1989, Andersen Consulting acquired McCormack & Dodge's PIOS manufacturing resource planning system. McCormack & Dodge employees who had worked on PIOS development and marketing were offered positions with Andersen Consulting. Terms of the purchase were not disclosed.
 - With an installed base of 75 sites, PIOS is used by a number of large defense contractors.
 - The transaction is part of an agreement between McCormack & Dodge and Andersen Consulting under which the two firms will jointly sell McCormack & Dodge's Millenium financial

and human resources software and Andersen Consulting's MAC-PAC family of manufacturing software products.

- Other 1989 acquisitions include:
 - Computer Management Associates, a consulting firm in Oslo (Norway)
 - Synerlogic, a Canadian consulting firm
 - CMC Consultores, a Spanish consulting firm.

Recent Major Projects

Andersen Consulting reports that about 80% of its commercial systems integration clients come from its existing account base and about 20% from new prospects specifically solicited for SI. In the U.S. federal marketplace, the split is 50% from each source. Undoubtedly, the high percentage of repeat business in the commercial market reflects Andersen Consulting's long-term account relationships with larger firms, while the 50/50 split in the federal market is indicative of its more recent entry into that marketplace and the fact that the federal market is more RFP-driven. In both markets, Andersen Consulting claims that its business has been profitable.

In recent years, Andersen Consulting has moved from a position of mainly pursuing very large projects to soliciting smaller ones as well. INPUT estimates that Andersen Consulting wins almost 60% of the projects it actively bids on; and it has completed projects ranging from \$2 million to \$80 million (average size about \$10 million). Andersen Consulting's top commercial customers are concentrated in discrete and process manufacturing, telecommunications, state and local government, banking and insurance, airlines and the federal government.

Although Andersen Consulting did not provide a list of specific projects, Exhibit G contains information on some of Andersen Consulting's key SI engagements.

Exhibit G

Examples of Andersen Consulting's SI Contracts

Company or Industry	Project Description	\$ Millions
Lockheed	Computer-aided layout/fabrication	3.0
Ashland Chemical	Order entry/inventory control	5.5
Ca. Dept./Development Services	Cost recovery system	3.6
Social Security Administration	Integrated administrative and financial system	12.0
Electronics Industry	Circuit Board Test and Assembly	52.0
Utility Industry	On-line billing system	30.0
Retail Industry	Finance, inventory and sales	10.0
Northwest Airlines	Revenue accounting	N/A
Paris Bourse	Stock exchange clearing and settlement	N/A
Swiss Options and Financial Futures Exchange	Planning and implementing electronic clearing and settlement system	N/A

In more detail, some of Andersen Consulting's key systems integration projects are as follows:

- Andersen Consulting is a systems integrator in an effort to develop an optical document image processing system for the Ontario (Canada) Ministry of Consumer and Commercial Relations. The system will capture the province's 10 million statistical records.
- Andersen Consulting helped Northwest Airlines integrate artificial intelligence, image processing, workstations and other

technologies to create a system that helps Northwest more accurately track passenger revenue and collect marketing information about customers' travel and spending patterns.

- For the 1992 Winter Olympics, Andersen Consulting has integrated the computer systems that will administer operations, results reporting, ticket selling, lodging, accreditation and other functions.
- Andersen Consulting is one of three firms participating in the installation of a new accounting system for the state of Texas. Andersen will develop an executive information system decision support tool for the system.
- An integrated financial and administrative system is currently being developed for the U.S. Social Security Administration. The project is expected to be complete some time in 1992, having lasted 60 months at a cost of \$12 million.
- The Paris Bourse, the fourth largest stock exchange in the world, is carrying out a project to modernise its clearing and settlement procedures. Andersen Consulting's contract includes the interconnection of 300 banks and 50 brokers with the capacity to handle 600,000 transactions every day.
- Andersen Consulting was hired by the Swiss Options and Financial Futures Exchange (SOFFEX) to plan and implement the SOFFEX exchange from scratch. Andersen Consulting was engaged as the prime contractor to open a Swiss options and futures exchange, develop/install an electronic trading and clearing system to link directly with member back offices, and manage other areas necessary to open the exchange.
- Power station automation project for National Power (U.K.).
- Involvement in the specification and development of an automated network environment for the U.K. Department of Social Security.
- An order entry and inventory control system was designed and implemented for Ashland Chemical. The project was completed in 1989 at a cost of \$5.5 million.
- A computer-aided layout and fabrications system was established for Lockheed. The project was completed in 1987, lasted 10 months, and cost \$3 million.

In addition to systems integration, Andersen Consulting is active in systems management, strategic services and change management services. Examples of projects carried out in these related areas are as follows:

Strategic Services:

Strategic Services helps clients develop market-driven strategies and align their business processes with those strategies in order to deliver value to customers.

Examples of work performed by the practice include the following:

- **Competitive/market strategy:** For a manufacturer of outdoor power equipment, Andersen Consulting developed and implemented a customer-driven strategic marketing plan and consumer strategy for the 1990s.
- **Organisation and change strategy:** Andersen Consulting helped a public transportation system make the transition from state administration to local control. Andersen planned the transition and designed a new organisation.
- **Business operations strategy:** For a multibillion dollar business unit of a major process manufacturer, Andersen Consulting streamlined the supply chain to simplify and speed the flow of products from manufacturer to distributor.
- **Information and technology strategy:** For a newly merged food products company, Andersen Consulting developed a strategy for integrating operations and information technology of the two previously separate businesses.

Change Management Services:

The Change Management Services practice helps organisations manage all elements of change.

- The philosophy behind change management is that the successful use of new technology depends on an organisation's ability to properly position, educate and motivate its people to employ it.
- Using methodologies and frameworks for planning, designing, implementing and maintaining change, Andersen Consulting seeks to help organisations develop well-organised, well-informed, highly skilled and highly motivated people at all levels.

Client examples include the following:

- Andersen Consulting planned, designed and developed technology-based training for the U.K. Department of Social Security in support of its migration from a pencil-and-paper operation to an automated networked environment.
- Andersen Consulting helped the Standard Chartered Bank of Hong Kong to revamp the bank's transactions systems throughout Asia. Andersen developed computer-based training for more than 3,000 employees to offer simulated practice and testing of more than 70 bank functions affected by the new system.

Systems Management:

Systems Management encompasses operations and network services, facilities management, applications management, software re-engineering and renewal, and back-up and recovery. Systems Management takes care of the daily needs of a client's systems so that the client can focus on its business. This service line is responsible for outsourcing deals in which a client turns over part or all of its data processing operations to Andersen Consulting.

Work in this practice area includes the following agreements:

- A \$200 million, 10-year agreement with Sun Refining & Marketing Co., under which Andersen Consulting acquired Sun R&M's Dallas Computer Centre, hired its employees, and assumed management of all Dallas Computer Centre's operations. (Contract signed October 1990).
- A \$50 million agreement with Voluntary Hospitals of America Inc. to install and manage a computer system that provides physicians and management at VHA member hospitals with comparative information on the cost and quality of patient care - even if their billing systems are different. (Contract signed fall 1990).
- Under a three-year, \$10 million contract, Andersen Consulting is managing the Medical Data Centre of the Milwaukee County Medical Complex. Andersen is responsible for computer operations, applications, maintenance, technical support and applications development. (Contract awarded in September 1991).
- Under a five-year \$89 million systems management contract, Andersen Consulting has assumed all of British Petroleum

Exploration Europe's (BPX) financial accounting services. In addition, BPX's 250 accounting services staff have been offered positions with Andersen Consulting and will be located in Aberdeen (Scotland).

- In January 1990, Andersen Consulting agreed to provide IBM SNA network support, systems software maintenance and technical support for Dial Corp.'s applications programming staff. As part of this \$10 million, five-year deal, Andersen Consulting agreed to manage Dial's data centre in Phoenix and migrate operations to its Dallas systems operations centre.
- Other current U.S.-based systems management contracts are held by Andersen Consulting with Wickes Furniture, Chicago Tile, Maxxus and United Medicorps.
- U.K.-based systems management clients include Standard Chartered Bank, Greenall Whitley (brewers), Yorkshire Health Authority, part of the Department of Social Security, DRG and Banque Belge.
- Andersen Consulting was awarded a major systems management contract by London's International Stock exchange in April 1992, amid controversy that the contract did not go to open tender. The exchange's Taurus settlement system development was aborted in 1993, resulting in the chief executive's resignation.

Products and Services

(i) *Technologies*

Andersen Consulting has developed a range of CASE tools. They were initially used internally by their IS consultants, then launched on the open market under the name FOUNDATION. This range operates in a wide range of IBM, Digital and Bull environments and consists of:

- Method/1
- Design/1
- Install/1
- Plan/1

FOUNDATION is an integrated, automated software development environment designed to support the entire life-cycle of application software development.

In 1991, the company stepped up its investment in computer-aided systems engineering (CASE) to the tune of \$35.3 million for its Foundation strategy, pledging to spend a further \$20.5 million this year.

The company also announced its latest Foundation products for co-operative processing and the DEC Vax environment.

It claims the Install/1 version 2.0 is the first commercially available CASE product to support DEC's version of IBM's CASE AD/Cycle program, Cohesion, and generate DEC's ACMS transaction processing applications.

Andersen Consulting is also offering a client-server software engineering tool for the OS/2 environment following the release a few months ago of a co-operative processing version of Foundation for VAX/VMS. Andersen says it is working to integrate the two products so that OS/2 and Windows clients can access OS/2, VAX or IBM mainframe servers. Prices for the product range from \$50,000 for a starter kit to \$1 million for a large-scale project. Later this year Andersen's Method/1 methodology will offer rules for splitting applications among processors.

CO-OPERATE is an integrated methodology and software tool set for computer operations designed for the IBM MVS operating system.

FOUNDATION's components include the following:

- METHOD/1 is a LAN-based automated methodology that provides a systems development framework - from information planning to production systems support. The methodology provides support and guidance for several different development options. The project management component, MANAGE/1, includes work plan generation, project estimating and quality assurance. METHOD/1 is integrated with DESIGN/1 and PLAN/1 and is accessible on-line. As of early fiscal 1992 there were 715 METHOD/1 installations.

- DESIGN/1 is a LAN-based set of analysis and design tools available in a number of environments. DESIGN/1 automates systems design tasks and techniques to improve productivity and design quality. Analysts and designers use DESIGN/1 to develop data flow diagrams, paint screens and reports, and perform conversational prototyping. The product is mouse-driven, provides an easily followed menu-driven structure and facilitates the sharing of design data. DESIGN/1 supports the activities of METHOD/1 and can be customised to support other methodologies. As of early fiscal 1992, there were 915 DESIGN/1 installations.
- INSTALL/1 is a development environment and application generator for DEC, IBM and Bull. INSTALL/1 provides portability and reuse across multiple platforms because INSTALL/1-generated applications do not contain platform-specific logic. INSTALL/1 also provides support for workstation-based generation and unit testing of on-line and batch applications, and a mainframe execution environment and services to support the development of batch applications. As of early fiscal 1992, there were 115 installations of INSTALL/1.
- PLAN/1 is an automated LAN-based tool set for information planning and engineering. PLAN/1 helps information systems professionals incorporate business strategies for planning systems development projects. Components include an information model, data model facility, decomposition diagram facility, data flow diagram facility, and matrix facility. As of early fiscal 1992 there were 25 installations.
- FOUNDATION for Cooperative Processing is an OS/2-based set of tools for developing peer-to-peer, client/server applications and distributed application processing, not just a frontware to existing applications. FOUNDATION for Cooperative Processing increases productivity through reuse of system components and facilities maintenance by generating applications from a shared Released fiscal 1992, the product supports OS/2 Presentation Manager clients and LAN and MVS/CICS server environments. Expanded availability will occur throughout 1992. As of early fiscal 1992 there were 20 installations.

Andersen Consulting also tries to stay at the forefront of technology and promotes "visions of the future" to senior executives as part of the process of convincing them of the importance of IS. Here the company's Business Integration Centres have an important role to play.

Andersen Consulting currently has three sites for its Business Integration Centres which specialise in industry- and function-specific technology. These centres serve as facilities where industry project teams from around the world build and demonstrate visions of the future through full-scale working technology exhibits (e.g., a factory floor or hospital of the future).

Business Integration Centres are located in Chicago, Dallas and Atlanta, with planned sites in New York, Los Angeles, Houston, Sao Paulo and Tokyo.

Andersen Consulting uses partnerships to gain access to the technologies, such as imaging and smart cards, required to support these demonstration centres.

Andersen Consulting also has a strong commitment to research and development, through formal organisations such as Technology Services, and through projects and facilities sponsored by local offices and other internal groups.

- In addition, service, products and support facilities are sources of leading-edge ideas about products and the application of technology with clients.
- Despite recessionary conditions, in fiscal 1991 Andersen Consulting increased its research and development investment to approximately \$264 million, up from \$238 million the year before.

Technology Services is responsible for technology visioning and knowledge transfer. One of the group's primary responsibilities is developing emerging technologies for clients. Those technologies include artificial intelligence, image processing, telecommunications and object-oriented development. This unit also establishes standard practices and develops practice methodologies, practice

aids and the FOUNDATION development tool. The group is organised as follows:

- Advanced Technology Group develops and disseminates technical specialty skills and provides direct support to local offices for client engagements. The group is organised into divisions, each of which specialises in a particular technology: New Age Systems (alternative architectures, workstation technology), Digital Equipment Corporation and AS/400, Knowledge-Based Systems Technology, Enterprising Systems and Imaging.

- Network Solutions participates in client engagements or projects in telecommunications and network computing and provides training and world-wide support to the consulting practice.
- CSTaR (Centre for Strategic Technology Research) seeks to identify technologies and techniques solving particular classes of business problems.
 - CSTaR consists of three areas of research: human systems integration, decision technology and software engineering.
 - Additionally, CSTaR is Andersen Consulting's liaison with Northwestern University's Institute for Learning Sciences and Microelectronics and Computer Technology Corp., a cooperative research venture involving 49 North American companies.
 - Research projects currently taking place in CSTaR include development of groupware and knowledge-based software engineering.
- FOUNDATION Development Group provides full-function CASE technology and associated services to the marketplace and consulting practice.
- The Advanced Development Group assists Andersen Consulting professionals in their use of new technology. Current programs include enhancing Andersen Consulting's capabilities with information engineering techniques, creating a new methodology for custom systems design and installation and incorporating workstation and object-oriented technology into the practice.
- Knowledge Transfer supports Andersen Consulting by providing knowledge transfer and training in key technical, functional and industry areas.

Andersen Consulting's Business Integration Centres are working environments that demonstrate how technology, when integrated with a business vision and management sense, can change the way business is done.

The centres are used primarily for research and development, training client and internal personnel, and demonstrating technology solutions from Andersen Consulting and participating vendors of hardware and software.

Andersen Consulting's services are supported through two types of facilities - systems management centres and advanced technology centres - and network management services.

Systems management centres are large, mainframe computer facilities that support systems operations services.

Advanced technology centres (ATCs) are staffed with technology specialists, workstations, and computer networks to provide client support, marketing support, and research and development. The skills and knowledge of specialists at ATCs can be shared on multiple client projects, as opposed to having resources tied to one long-term engagement.

Andersen Consulting's Network Solutions practice provides a range of network integration and network management consulting services to support the organisation's systems integration and systems management activities.

- Network Solutions works with the Systems Management practice to identify potential outsourcing opportunities, orchestrate outsourcing arrangements, support client network migrations and identify new network environments to better meet clients' changing information technology requirements.
- AANet is Andersen Consulting's primary telecommunications vehicle for meeting its information needs. In addition, AANet is available to support network outsourcing services. The network spans North America and provides coverage to Europe as well as select regions of Asia.
- In addition, Andersen Consulting has formed alliances with INFONET Services Corp. and SigmaNet to penetrate areas AANet does not access.
- Andersen Consulting continues to develop its network services capabilities, reflecting the organisation's commitment to the network outsourcing market.

(ii) Industry Knowledge

Industry knowledge is one of the keys to Andersen Consulting's success, and to promote the use of technology within industry, Andersen Consulting has nine technology exhibits running in five "Business Integration Centres". For example:

- At one Business Integration Centre, Andersen Consulting has designed a minifactory (located in Chicago, IL) that displays CIM

techniques. The minifactory integrates the products from 35 different companies and produces an aluminium casting that holds a printed circuit board and plastic connectors.

Other technologies in the Chicago centre include expert systems, voice recognition, vision systems, Ethernet and MAP 2.1, personal workstations, touch screens, computer-aided design, computer-aided manufacturing, MRPII, group technology, robotics, material handling, cell control, computer numerical control and bar code data collection.

- A second Business Integration Centre, also located in Chicago, contains SMART STORE 2000, a show-case of Andersen Consulting's vision for the food pipeline process through the retailer. The exhibit incorporates state-of-the-art hardware and software applied by more than 40 participating vendors and addresses food industry management concerns about the future.
- Andersen's LOGISTICS/2000 exhibit, in Atlanta, demonstrates how the integration of technology can benefit a logistics organisation. It includes an automated warehouse and offices for sales and customer service, inventory management, transportation management, and executive management.
- Another Business Integration Centre, Hospital of the Future, represents Andersen Consulting's vision of the systems technologies that will support the health care delivery system of the 1990s. Located in Dallas, the exhibit will serve as a permanent site for Andersen Consulting and more than 20 participating vendors.
- Also located at the Dallas Infomart are Andersen Consulting - The Retail Place, The Factory, ACES, and GEO-PLUS. The Retail Place is Andersen Consulting's fully operational Quick Response retail store. The exhibit demonstrates how Quick Response establishes new business strategies, relationships and procedures to speed the flow of information and merchandise between retailers and vendors. The Factory is a working factory that shows manufacturing automation from order entry through distribution.

ACES is Andersen Consulting's Engineering Systems exhibit, highlighting imaging technologies and document management functions applicable to a manufacturer as well as a financial service, insurance or pharmaceutical company. GEO-PLUS demonstrates geographical mapping solutions.

In Europe, Andersen Consulting is particularly strong in the manufacturing - both discrete and process - and financial services sectors.

Andersen Consulting focuses its attention on the critical understanding of its client's industry, seeing each sector as subject to a unique combination of forces affecting business decisions. The Market Sectors it identifies with are:

Financial Services:

- Banking
- Capital Markets
- Insurance
- Asset Finance

Industrial and Consumer Products

- Automotive
- Aerospace & Defence Contractors
- Pharmaceuticals and Food Processing
- Oil and Gas
- Chemicals
- Electronics
- Retail and Wholesale Distribution

Government and Services

- European, National, Regional and Local Government
- Defence and Security Agencies
- Health care and Social Services
- Telecommunications
- Electric, Gas and Water Utilities
- Transportation and Hotels
- Leisure and the Media.

Across these markets there are a set of common management needs, recognised by Andersen as:

Financial Management

- Planning and Reporting
- Financial Control and Cost Management
- Treasury Management

Materials Management and Logistics

- End-to-end Pipeline Management

Sales and Marketing

- Sales and Market Analysis
- Customer Service Systems
- Database Marketing

Executive Information Systems

- World Class Management

(iii) Key Application Products

Andersen Consulting's key application software products are listed in Exhibit H.

Exhibit H

**Andersen Consulting
Applications Software Products**

Product	Description
MAC-PAC	MRP-II product linking plant automation and manufacturing software. Several other MAC-PAC packages run within this series for specialised applications such as defence contracting.
DCS/Logistics	Manages customer service and logistics functions.
PROCESS/1 industry	A production management system for process manufacturers.
PIOS	(Production and Inventory Optimisation System) On-line manufacturing control system acquired from McCormack & Dodge.
CELL-PAC	Factory floor cell control software.

MAC-PAC is an integrated, on-line distribution and manufacturing system that allows manufacturers to share information throughout their entire organisation. The entire flow of information can be defined and managed - from customer order to manufacturing, raw material purchase and distribution.

- MAC-PAC runs on IBM and compatible mainframes under DOS, MVS.
- There are currently more than 120 MAC-PAC installations.
- MAC-PAC/D is a specialised, fully integrated manufacturing enterprise management system for aerospace and defense contractors and other project-oriented manufacturers.
- The MAC-PAC/D family of products includes: MAC-PAC/D (manufacturing), IPD (engineering), PROCUREMENT/D (procurement), FACTORY MANAGEMENT/D (shop floor) and FINANCE/D (cost and financial).
- The products run on IBM and DEC mainframes. FACTORY MANAGEMENT/D also runs on DEC VMS and Hewlett-Packard open architecture platforms.
- There are currently 75 MAC-PAC/D installations.

MAC-PAC for the IBM AS/400 is a fully integrated, on-line manufacturing, distribution and financial system that operates in a single or multi-plant environment.

- The system supports discrete, just-in-time/repetitive, make-to-order, job shop or a combination of these manufacturing environments. Multi-language and multi-currency features are also included.
- There are currently more than 600 installations.

DCS/Logistics is an on-line, integrated system that supports the customer service, distribution and logistics management functions of medium-to-large manufacturing and distribution organisations.

- DCS/Logistics for the IBM System 370 has 14 application modules. DCS/Logistics for the VAX has nine modules.
- There are currently more than 175 DCS/Logistics installations.

PROCESS/1, introduced in 1991, is a fully integrated product for process industry manufacturers. The PROCESS/1 client/server

architecture supports multinational operations and provides features such as multi-currency, multi-language, and unit-of-measure conversion. PROCESS/1 is available for DEC VAX, VMS Systems.

Designware for FOUNDATION is a cross between packaged software and custom-developed systems applications that provides a jump start on application development. Designware offerings include:

- CUSTOMER/1, a customer information model for the utilities industry
- WORK/1, work order management designware for the utilities industry
- INVEST/1, for institutional investors creating securities accounting and management systems
- LIFE/1, a suite of products, including planware (software for information planning) and designware, that supports the policy administration needs of life insurance companies.

In order to get clients involved in software research and development, Andersen Consulting also operates ASSIST, a user's group of its applications software and development tools. ASSIST membership is open to any licensed user of Andersen Consulting software products world-wide.


**Financial
Information**
Exhibit I
ANDERSEN CONSULTING four-YEAR REVENUE SUMMARY
 (\$ Millions)

ITEM	FISCAL YEAR			
	1989	1990	1991	1992
Total Revenue	1,561.3	2,057.1	2,341.4	2,722.9
Annual Change		32%	14%	16%
Americas	934.4	1,153.0	1,226.4	1,383.0
Annual Change		23%	6%	13%
Asia Pacific	115.1	133.9	165.5	209.0
Annual Change		16%	24%	26%
Europe/ M. East/ Africa/India	511.8	770.2	949.5	1,130.9
Annual Change		50%	23%	19%

Of fiscal 1992 revenue growth, down on 1991's, 48% derives from Europe/Middle East/Africa/India, which contributes only 42% of the total revenue, and 11% from continued high rates of increase in Asia Pacific, which contributes 8% to revenue.

Market Analysis

Exhibit J

ANDERSEN CONSULTING four-YEAR SOURCE OF REVENUE SUMMARY world-wide (\$ Millions)

	FISCAL YEAR			
	1989	1990	1991	1992
Financial Services	405.8	534.5	590.6	672.3
Annual Change		32%	10%	14%
Government	176.1	250.9	281.6	287.9
Annual Change		42%	12%	2%
Health care	55.4	53.2	70.2	77.5
Annual Change		(4)%	32%	10%
Products	692.3	907.2	985.4	1,122.6
Annual Change		31%	9%	14%
Telecommunications	87.1	107.4	136.0	192.2
Annual Change		23%	27%	41%
Utilities	83.7	124.0	184.7	260.3
Annual Change		48%	49%	41%
Other	60.9	79.9	92.9	110.1
Annual Change		31%	16%	19%

Telecommunications and Utilities together generated 35% of the growth for 1992 from only 17% of the total revenue.

A breakdown of 1992 revenue by country is given in Exhibit K

Exhibit K

Financial Analysis by Country 1992

COUNTRY	\$M	PERCENT
U.K. 12.60		343.09
Spain	209.12	7.68
France	145.13	5.33
Italy	137.51	5.05
Germany	97.20	3.39
EMEI Other	198.77	7.30
Asia Pacific	209.12	7.68
Americas	1,382.96	50.79
TOTAL	2,717.91	100

Note: EMEI is the Andersen business unit covering Europe, the Middle East, Africa and India. Total revenues from U.K., Spain, France, Italy, Germany were \$932 million, or 34.23% of the world-wide figure.

The following exhibits give INPUT's analysis of country, delivery mode and industry sector revenues.

Exhibit L

1992 Market Analysis by European Country

COUNTRY	\$M	PERCENT
France	130	13
Germany	85	8
U.K.	310	30
Italy	125	12
Netherlands	9	1
Belgium/Lux'	18	2
Spain	189	18
Switzerland	23	2
Austria	9	1
Sweden	25	2
Denmark	10	1
Norway	10	1
Finland	5	0
Ireland	6	1
Portugal	33	2
Greece	0	0
Eastern Europe	10	1
Europe Balance	26	3
TOTAL INFORMATION SERVICES	1,023	100

Source: INPUT

Note: Numbers are rounded

Exhibit M

1992 Market Analysis by Delivery Mode

DELIVERY MODE	\$M	PERCENT
Systems Software Products	20	2
Application Software Products	30	3
Turnkey Systems	0	0
Professional Services	535	49
Systems Integration	390	35
Systems Operations	45	4
Network Services	0	0
Processing Services	0	0
Total Software and Services	1,020	93
Equipment Services	0	0
Total Information Services	1,020	93
Equipment/Other Revenues	80	7
TOTAL EUROPEAN REVENUES	1,100	100

Exhibit N

1992 Market Analysis by Industry Sector

Industry Sector	\$M	Percent
Discrete Manufacturing	165	16
Process Manufacturing	35	3
Transportation	20	2
Utilities	65	6
Telecommunications	15	1
Retail Distribution	60	6
Wholesale Distribution	80	8
Banking and Finance	325	32
Insurance	50	5
Health care	20	2
Local Government	20	2
National Government	120	12
Business Services	25	2
Systems Software Products	20	2
TOTAL SOFTWARE AND SERVICES	1,020	100

Source: INPUT

Note: Number are rounded

Company
Strategies

(a) Company Direction

Andersen Consulting wants to gain and maintain position by being the pre-eminent provider of solutions to "top" organisations worldwide. The focus is strictly on partnering to provide solutions. Although not explicitly stated in the interview process, INPUT believes that Andersen Consulting sees itself as taking leadership as the "respected consultant/provider of strategic information systems".

From a business perspective, Andersen Consulting sees the revenue and profits from systems integration as a primary motivator for development of the business, along with control of account base and the need to respond effectively to existing and new customer demand. As would be expected, "dragging" hardware and follow-on facilities management contracts are not of primary interest, although the latter has become more important as competition with IBM and EDS becomes more intense.

The backbone of Andersen Consulting's marketing approach is its vertical business focus and business process orientation. The process is targeted at developing high-level business solutions and converting them into the application of information technology. Andersen Consulting was one of the first, and clearly is one of the

most successful, systems integrators to approach the "strategic systems" market. The Andersen Consulting "process" is at the heart of each project. Andersen Consulting understands the value of developing relationships with high-level managers in target firms and industries and very effectively utilises referral selling at these levels. Andersen Consulting's demonstrated capability of dealing with projects over \$50 million makes it one of the few commercial systems integrators that can make that claim.

In addition, as part of its marketing process, Andersen Consulting has developed and utilises four Business Integration Centres which feature its product offerings. The Chicago, IL, centre for CIM and JIT manufacturing environments could be considered a "show-case" example.

Andersen Consulting's primary positioning with customers/prospects is to promote its ability to apply information technology to achieve competitive advantage. Andersen Consulting uses this consistent theme in combination with its in-depth vertical industry expertise to present itself as a number-one seller of business solutions. Andersen Consulting has invested heavily in recent years in developing its technological expertise. Though this is still not a primary positioning point, it certainly plays a role when presenting the entire package to the customer. INPUT believes these capabilities will become more significant in the future.

Finally, INPUT believes that Andersen Consulting enjoys a somewhat unique marketing position among leading systems integrators which is worthy of comment. Andersen Consulting frequently "writes" the RFP, at least in the figurative sense. Andersen Consulting's business consulting skills often give it entry to the prospect's environment long before a solution or even, at times, the problem, has been defined. Operating from a high-level position as a consultant and supported by the FOUNDATION methodology, Andersen Consulting has often closed the business before it has been opened. As a full-service provider, Andersen Consulting is a logical selection for implementor once the consulting is done. Exhibit O summarises Andersen Consulting's marketing strategy.

Exhibit O

Andersen Consulting Marketing Strategy

- Positioning: strategic systems, business expertise
- Vertical market focus for commercial marketplace
- Strong methodology
- Promotion: referral, technology centres
- Primary competitors: IBM, EDS, CSC

INPUT expects that Andersen Consulting will continue to develop partnerships with leading application software product vendors to gain access to the building blocks required for systems integration projects. Andersen Consulting will also endeavour to maintain a high level of capability in leading technologies such as imaging and artificial intelligence and will again use partnerships to achieve this aim.

As well as its traditional project capability, Andersen Consulting is targeting systems management opportunities. However the company professes a low level of interest in platform operations contracts unless these are accompanied by application development or business operations activity. Andersen Consulting is believed to be now targeting its business operations services at functions other than accounting such as personnel management and marketing.

(i) Consulting

INPUT believes that overall, Andersen Consulting has significant capabilities in the areas that are most important for winning and executing SI contracts. Its focus on the top end of the life cycle and perceived strengths in understanding business solutions in many industry sectors gives it an edge on the market that few others have.

Andersen Consulting's principal skills are in providing "front end" management consultant to clients and then following through with other IS professional services and complex systems integration projects to fully implement new information systems. Its management consultant capability centres on business integration - the inter-relationship of these four fundamental aspects of business:

- Devising both business and IT strategies in fast-changing markets.
- Planning, developing and implementing computer systems and networks with appropriate IS technology.
- Managing and controlling large computer centres and telecommunications networks.
- Managing the resulting changes and their impact on people within the business organisation.

The range of services Andersen Consulting offers includes:

Strategic Services:

- Strategic Planning and Studies
- Marketing and Sales Planning
- Competitive Studies
- Organisation Studies
- Total Competitiveness
- Information Planning.

Change Management Services:

- Organisation Change
- Human Resource Management
- Knowledge Transfer
- Technology Assimilation.

Integration Services:

- Strategy Integration
- Systems Integration
- Systems Management.

Strategic Services include analysing clients' marketplace and competitive position, identifying strategic alternatives, establishing a formal direction, and monitoring the execution of the strategy. Andersen Consulting assists in forming and managing the strategic planning process and providing marketing, competitive and organisational analyses, and conducting profit planning programs.

Systems Integration and Systems Management Services include total system solutions and assistance throughout the system's life cycle, including:

- Planning, design, application and systems software programming
- Procedures and computer-based training
- Hardware and communications acquisition and installation
- System management, system maintenance, project and systems management
- Implementation assistance, including a development methodology, productivity aids, customised packaged software, applications systems software programming, training and project management.

The Change Management Services practice of Andersen Consulting works with organisations to position people, processes and technology for maximum, continuous benefit. Using a practice methodology that encompasses designing, implementing and maintaining the changes made, each of three integrated service lines addresses the essential ingredients of change:

- The organisation (Organisation Change)
- The individual (Knowledge Transfer)
- The integrated use of technology (Technology Assimilation)

(ii) Geographic Coverage

Andersen Consulting is a major player in systems integration in both the U.S. and Europe. However two-thirds of the organisation's European revenues are derived from the United Kingdom, Spain and France. Andersen Consulting still needs to increase its presence elsewhere in Europe and in particular in Germany.

The firm is active in central and eastern Europe with German and Austria offices handling activity in Hungary and Czechoslovakia, and the U.K. office handling Poland and the U.S.S.R.

Andersen Consulting has 151 offices in 46 countries, including 75 offices in the Americas, 58 offices in Europe/Middle East/Africa/India, and 18 offices in Asia/Pacific.

(iii) Partnerships

Andersen Consulting has established some significant alliances that strengthen the firm's SI capabilities. As with most other major systems integrators, Andersen Consulting utilises both long-term and project-by-project alliances. Andersen Consulting believes that the use of alliances supports its strategy for SI by:

- Providing hardware at competitive prices
- Giving it early access to new technologies
- Providing assistance in financing projects
- Supplementing areas where it has limited internal capability, such as maintenance support and world-wide telecommunications.

The majority of its longer-term alliances have evolved from working with particular subcontractors or partners on a repetitive basis. Other alliances have developed as a result of Andersen's strategy to develop industry-specific software.

The alliances with hardware manufacturers - Hewlett-Packard, for distribution and marketing applications, and IBM - effectively support Andersen Consulting's thrust into financial and manufacturing markets. Andersen Consulting works with DEC as well. Exhibit P provides examples of Andersen Consulting's strategic alliances in systems integration.

Exhibit P

**Andersen Consulting - SI Strategic Alliances
(Limited Sample)**

Product	Description	
Hardware Microsystems Instruments	IBM	Sun
	Hewlett-Packard	Texas
	Pyramid Technology	AT&T
	DEC	Motorola
	Tandem	
Applications Software Software	UCCEL/CAI	IBM
	MSA	American
	McCormack & Dodge	
	SAP (Financial)	
	Inference Corporation	
Systems Software	IBM	
	AION (Expert Systems)	
Cooperative Marketing	Aetna (Insurance)	
Networking/ Telecommunications	Infonet	

A central Application Products Organisation markets and supports Andersen Consulting's software products, coordinates artificial intelligence and telecommunications centres of expertise in support of client projects, and operates a software intelligence group.

Andersen Consulting's Software Intelligence Group is responsible for gathering, evaluating and disseminating information on applications software products and vendors; working closely with software vendors to enhance their existing products; informing firm personnel of new applications software products, enhancements to existing products and software industry trends; helping clients benefit from the most current knowledge and most recent hands-on experiences of firm personnel who have worked with packaged software products; supporting firm professionals on client projects and developing methodologies and tools to help ensure successful implementation of applications software-based systems.

- The group has implemented a number of relationships with software products companies through the OASIS program. This program provides Andersen Consulting with in-depth knowledge of the products of key software companies such as Dun & Bradstreet Software Services, SAP, Quality Software Products, PeopleSoft and Lawson Associates. Andersen Consulting works on major projects implementing those companies' software products.

Andersen Consulting also maintains a number of partnerships to provide access to advanced technologies. For example in Europe, Andersen Consulting has partnerships with many of the leading imaging systems suppliers.

Other examples of alliances include:

- In 1991, Andersen Consulting allied with Microsoft to provide services to clients in developing client/server applications.
- In 1990 Andersen agreed with Xerox to provide its clients with products from the new Xerox DocuTech Publishing Series.

Andersen's Business Integration Partnership (BIP) program establishes and manages alliances with companies in order to combine systems and specialised services. Current partners under the BIP program include Amdahl, Apple, AT&T/NCR, BBN Software Products, Compaq, Dell Computer, Digital Communications Associates, DEC, FileNet, Foxboro, Grid Systems, Groupe Bull, Hewlett-Packard, IBM, Infonet, Informix, Microsoft, Norand, Novell, Palette Systems, Plexus, Pyramid, Sun, Sybase, Symbol, SynOptics Communications, Systems Centre, Tandem and Toshiba.

(b) Strengths and Weaknesses

Andersen Consulting has an excellent overall image as a systems integrator. Strengths include its ability to manage the client's planning process, the resources to handle very large projects, and its focus on professional services. Its on-going investments in key applications software products and the continued development and education of its professional staff will continue to build the positive momentum it has in the marketplace.

Not to be overlooked on the positive side is Andersen Consulting's ability to formulate client requirements. Focusing on the high end of the life cycle, Andersen Consulting frequently "writes" the RFP, so to speak - a position that many of its competitors should envy.

The result is a very high success rate in winning contracts, which minimises marketing and bid preparation costs.

Andersen Consulting has a full in-house capability at the high end of the development life cycle, and also as might be expected, makes heavy use of alliances in the areas of systems software, hardware, custom and communications hardware, and hardware maintenance.

Business Consulting, Design and Project Management is the area of Andersen Consulting's strength. The combination of a solid methodology along with uniform and effective training of its personnel produces consistent, if not always exceptional results. Consistent with the professional services orientation of the firm, education, training, and documentation are also significant skills that it markets heavily as part of its capabilities.

Packaged Applications Software is clearly an area of strength for Andersen Consulting. It has made significant investments in the development of numerous packages. The aggressive marketing of these packages, along with the development and utilisation of strong alliances to fill the gaps, gives Andersen Consulting a very strong position within its competitive group in the applications software area.

Andersen Consulting's strengths far outweigh its weaknesses as a systems integrator. In fact, its strong set of capabilities in the high end of the life cycle serves to reduce significantly its dependencies on outside suppliers for the high-risk elements of most SI contracts. Its strengths in software development, project management and packaged systems and applications software have contributed measurably to the firm's success. The weaknesses in service and repair and, to some degree, design integration, are not critical to success in the business, particularly in the vertical markets where Andersen Consulting has focused.

In those areas where Andersen Consulting might be perceived as being weak, there are plans in place.

- The inherent problem with the decentralised partnership profit centre structure is being addressed by the recent round of reorganisations.
- The "by the book" (perceived by some as overly structured) approach to design and engineering is fading as higher-level and better-trained consultants enter the SI practice.
- A weak technical image is being overcome by heavy investment in proprietary technology.

The future looks bright for Andersen Consulting. INPUT expects its market approach to become more aggressive as the reorganisation of the consulting activity falls into place. INPUT anticipates increased focus on Europe and Asia. In addition, the market can anticipate further heavy investments by Andersen Consulting in technology to support both vertical and, to a lesser extent, cross-industry markets.

(d) Conclusions

Andersen Consulting's strengths include contacts at the vice-presidential or presidential level at customer companies. In fact, each IS partner is expected to be able to contact senior officers at their top accounts. In addition, Andersen Consulting offers extensive in-house staff training and has a strong service-oriented culture. Andersen Consulting has developed a variety of strong third-party hardware and software vendor relationships to support it in its information services consulting business.

INPUT does not believe that Andersen Consulting has any significant weaknesses. However, some problems do exist. First, Andersen Consulting's partnership culture has traditionally worked against change. However, recent developments within the organisation are likely to minimise the effect of this problem. Second, Andersen Consulting's approach to systems integration has been heavily business-process-oriented. Top down in nature, the approach is not suitable for every client. Finally, Andersen Consulting's strengths in the international component of the IS/SI market have significantly lagged behind the U.S. operation's. However, Andersen Consulting is rapidly building these capabilities. Exhibit Q summarises INPUT's assessment of competitive strengths and weaknesses as they apply to the systems integration business.

Exhibit Q

Andersen Consulting's Competitive Status

SI Strengths	SI Weaknesses
High-Level client contracts	Partnership culture
In-house training capability	Process orientation
"Professional service culture"	Limited European coverage
Strong third-party relationships	

Overall INPUT expects Andersen Consulting to remain one of the major players in the systems integration market. The key determinant of success in much of the systems integration market is the vendor's credibility in business consulting with senior executives. In this respect, Andersen Consulting has successfully differentiated itself from its major competitors.

Andersen Consulting has been one of the most phenomenal knowledge-related businesses of the last 20 years. Revered at one moment by its competitors in the information services marketplace, and not taken seriously at others, the consulting operation has consistently shown significant growth rates and defeated the competition on a regular basis.

(e) Strategic Assessment - Andersen Consulting

Andersen Consulting is the one Big Six accounting company that has achieved really significant inroads into the computer-related professional services business. This reflects a long held management orientation and culture emphasising the wider business issues faced by its audit clients and dates back to its founder Arthur Andersen.

During the 1980s Andersen Consulting itself was set up as a separate organisation in an attempt to resolve the ever present 'partner' related conflicts in its business. During this time Andersen developed significant presence in addressing the systems integration needs of clients firstly in the U.S. and subsequently in Europe. However Andersen Consulting's partner structure has led to a patchy performance across European countries and its strong reliance on marketing relatively low-level information systems personnel impacted its performance during 1991 in some countries including the U.S.

Andersen Consulting has pursued the logic of its business approach into the area of systems operations or 'outsourcing' only to run up against increased needs for partner commitment for capital and a need for 'process' as opposed to 'project' skilled people.



COMPANY PROFILE

AT&T

32 Avenue of the Americas
New York
NY 10012-2412
U.S.A.
Tel: +1 212 387 5400

Chairman and CEO: Robert E. Allen
Status: Public
Number of Employees: 312,700
Revenue (FYE 31-12-92): \$64.9billion

Introduction

This profile deals with AT&T and with its computer hardware and services subsidiary NCR.

The Company

American Telephone and Telegraph Company "AT&T" is the leading provider of telecommunications services and equipment in the U.S., operating the largest switched long-distance voice network. It manufactures and distributes telephone switching equipment, sells/leases voice and data business equipment and provides extensive international network services.

Only 8.7% (c \$5.7 billion) of AT&T's 1992 revenue arose from operations located outside the USA .

It faces competition from two sources: independent service providers such as Sprint and MCI, and large companies implementing national networks for their own use but with spare capacity for resale.

In central office switching equipment, it faces increasing competition from companies such as General Telephone, Northern Telecom, and Fujitsu. Since divestiture, AT&T has lost market share in the end-user equipment market to the Bell Operating Companies and in the third-party (largely foreign) market. It has become much more aggressive in marketing and pricing its products.

In 1989 AT&T acquired Istel, formerly BL Systems Ltd. AT&T Istel is the subject of a separate INPUT Vendor Profile.

In 1991 AT&T acquired NCR in a hostile take-over.

NCR Corporation

NCR is a long established company, with operations in 120 countries, 1,200 offices, 52,000 staff (21,000 in services.) It develops, manufactures, markets, supports and services enterprise-wide information systems. Its portfolio includes products and services transferred from AT&T Computer Systems and those of Teradata which was merged with NCR in 1992.

Total revenues in 1992 were \$7.1 billion of which 39% arose from services and software, 28% from Europe and in total 53% (c \$3.8 billion) from operations outside the USA.

NCR's prime industry targets are:

- Retail
- Financial & Insurance
- Public Sector
- Transport
- Communications
- Consumer Goods Manufacture

Financial Information

Exhibit A provides a five-year financial summary and Exhibit B shows a three-year breakdown of revenues by activity for AT&T.

Exhibit A**AT&T Five-year Financial Summary (\$ Millions)**

	1988	1989	1990	1991	1992
Consolidated Revenues	61,756	61,100	62,191	63,089	64,904
Growth Rate (%)	2	1	2	1	3
Net Income	(1,231)	3,109	3,104	522	3,807
Growth Rate (%)	(149)	353	0	(83)	629

Source: AT&T

Exhibit B

AT&T Revenues
Three year Breakdown by Activity (\$ millions)

PRODUCT SERVICE	1990 REVENUE	1991 REVENUE	1992 REVENUE	1992 SHARE
Telecommunications Services	38,263	38,805	39,580	61%
A) Telecommunication Networks Products & Systems	7,303	7,490	7,711	12%
B) Computer products/systems	4,120	3,667	3,433	5%
C) Communications products/systems	2,837	2,852	3,098	5%
D) Microelectronics, special products for US Government and other	2,231	1,932	1,864	3%
SUB-TOTAL (A-D) PRODUCTS & SERVICES	16,124	15,941	16,473	25%
E) Computer products and systems	2,568	2,676	2,667	4%
F) Communications products and systems rentals	2,064	1,674	1,409	2%
G) Communications products and systems services	1,347	1,299	1,375	2%
H) Other	1,014	1,310	1,506	2%
Sub-total (E-H) Rentals and Other Services	6,993	6,959	6,957	11%
Financial Services and Leasing	811	1,384	1,894	3%
TOTAL	62,191	63,089	64,904	100%

Source AT&T

Exhibit C provides a five-year financial summary for NCR and Exhibits D and E show breakdowns of 1992 revenues by region and activity.

Exhibit C

NCR Five-year Financial Summary (\$ Millions)

	1988	1989	1990	1991	1992
Revenues	5,990	5,956	6,285	N/A	7,100
Annual Revenue Growth	-	0%	6%	%	+ve%
Annual Profit Growth %		down%	down%	DOWN%	UP%

Source NCR

Revenue growth 1991/92 results from inclusion of turnover of Teradata and of former AT&T Computer Systems operations.

Operating margins growth reflect cost structure improvements and expense management. For example, certain R&D activities of former AT&T Computer Systems were consolidated.

Exhibit D

1992 NCR Revenues
Breakdown by Activity (\$ millions)

PRODUCT SERVICE	REVENUES	SHARE (%)
Industry Specific Products		
Retail	426	6
Financial	781	11
General Purpose Computers		
New Way of Computing	923	13
Traditional and Other	923	13
Other Products	1,278	18
Services and Software	2,769	39
TOTAL	7,100	100

Source NCR

Exhibit E

**1992 NCR Revenues
Breakdown by Region (\$ millions)**

REGION	REVENUES	SHARE (%)
United States	3,337	47
Europe	1,988	28
Pacific	1,349	19
Latin America Middle East and Africa	426	6
TOTAL	7,100	100

Source NCR

Exhibits F to H provide INPUT's estimate of NCR's European software and services 1992 revenues broken down by industry, country and delivery mode.

Exhibit F

**Estimated Revenues by Industry Sector, Software and Services, Europe
AT&T/NCR, 1992**

	REVENUES (\$ MILLIONS)	SHARE (%)
Industry Sectors:		
Discrete Manufacturing	34	13
Retail Distribution	38	15
Wholesale Distribution	9	4
Banking and Finance	76	30
Insurance	8	3
National Government	11	4
Business Services	9	4
Other Industries	4	2
Systems Software Products	62	24
Total Software and Services	257	100

Source: INPUT estimates

Exhibit G

**Estimated Revenues by Delivery Mode, Software and Services, Europe
AT&T/NCR, 1992**

DELIVERY MODE	REVENUES (\$ MILLIONS)	SHARE (%)
Systems Software Products	62	3
Application Software Products	80	4
Turnkey Systems	32	2
Professional Services	67	3
Systems Integration	8	0
Network Services	1	0
Processing Services	7	0
Total Software and Services	257	13
Equipment Services	536	27
Total Information Services	793	40
Equipment/Other Revenues	1,195	60
Total European Revenues	1,988	100

Source: INPUT estimates

Exhibit H

**Estimated Revenues by Country, Information Services, Europe
AT&T/NCR, 1992**

COUNTRY	REVENUES (\$ MILLIONS)	SHARE (%)
France	125	16
Germany	120	15
U.K.	135	17
Italy	50	6
Netherlands	43	5
Belgium/Lux'	20	3
Spain	87	11
Switzerland	103	13
Austria	16	2
Sweden	16	2
Denmark	40	5
Norway	16	2
Finland	8	1
Ireland	8	1
Portugal	4	1
Greece	2	<1
Eastern Europe	2	<1
Total Information Services	793	100

Source: INPUT estimates

**Organisational
Structure**

AT&T's organisation has shifted from highly centralised with matrixed support to largely decentralised.

NCR and AT&T Istel operate as autonomous subsidiaries. AT&T Istel is profiled separately.

NCR

In November 1993 NCR announced a major reorganisation - including the replacement of a number of top executives - marked by a move to centralisation. All marketing teams now work under one world-wide umbrella. The new structure allows for a greater emphasis on services.

Customer Focused Business Model

A key feature of the new structure is the Customer Focused Team. The team contains representatives of services, sales, marketing, products and systems, and support. Thus it has all the skills needed for a customer group, or in some cases, an individual major customer.

NCR emphasise that the inclusion of personnel from service and support functions - on an equal footing with traditional hardware sales staff - is an indicator of the key role of services in its total offering.

Some 750 teams are deployed world-wide. According to new Chairman Jerre Stead, teams have "full power, permission, and protection to do whatever is necessary to delight our customers." To add to the theme of empowerment, the senior staff are referred to as "coaches."

Exhibit I

NCR Key Executives

Jerre L Stead	Chairman & CEO
Bill O'Shea	Senior VP World-Wide Marketing
Tom Mays	Senior VP Products & Systems
Jack Poole	Senior VP The Americas
Joe Stephan	Senior VP International
Dick Reese	Senior VP World-wide Customer Services
Tony Fano	Senior VP Quality & Re-engineering
Dick Brenner	VP Human Resources
Dan Enneking	VP Systemedia
Ray Fitzsimons	VP Secretary & General Counsel
John Giering	Senior VP Chief Financial Officer
Phil Neches	Senior VP Chief Scientist
Lola Signom	VP Public Relations

Structure

The main groups are:

- World-wide Marketing
- Products and Systems
- Field Operations (The Americas)
- Field Operations (International)
- World-wide Customer Services

World-wide Marketing's role is to establish NCR's market position, determine key target markets and strategies, determine sales resources and prioritise programmes.

Products and Systems' role is to realise and deliver products and programmes, technical support for marketing and sales initiatives, world-wide distribution, manage R&D, product and distribution costs relative to full-stream profit statements.

There are four basic product lines of business (work-stations, computer systems, financial and retail systems) and two fully integrated lines of business (micro electronics and ADDS.)

World-wide Customer Services' role is to develop offerings in Professional Services and Customer Support Services. Once a new service is "productised" it is passed over to Field Operations to sell and implement. In this arrangement NCR is giving services their own "factory" with equal status with those of Products and Systems.

Field Operations' role is Customer Focused Team development and support, product and solution sales, service and support; execution of global marketing programmes; and the development and execution of local programmes.

It is divided into two groups - The Americas and International - and 15 areas. The areas in Europe are Germany, UK, Switzerland, Spain/Portugal (Iberia,) Italy, France, Nordic/Benelux countries, Austria/Central Europe/Turkey.

Acquisition /Divestment History

1984 Regional Bell Operating Companies divested

1989 Intel acquired

1990, AT&T exchanged its holding of 100m shares in Olivetti for newly issued voting and non-voting shares of Compagnie Industriale Riunite S.p.A. (CIR). CIR is an Italian holding company with investments in information technologies, publishing, financial services and automotive components. Later in 1990, AT&T sold the non-voting shares for \$175m. AT&T still hold the voting shares as an investment.

1991 (September) NCR acquired.

1991 Investment in Sun Microsystems sold

1991 Portion of ownership of UNIX System Laboratories Inc (USL) sold

1992 (First quarter) Teradata Corporation, (seen by AT&T as "a leader in high-performance computer systems and large database management,") acquired and incorporated into NCR operation.

Products and Services

AT&T

AT&T is one of the world's most capable providers of telecommunications facilities and service and it has great expertise in the management of very large projects, such as underwater intercontinental telephone cable-laying.

AT&T provides a wide variety of international network services, to clients who include foreign governments and national organisations. In its traditional lines of business, AT&T has superior technical capability and provides services to virtually all vertical markets. It is a leader in basic research.

AT&T has exceptionally strong capabilities in areas related to the design, development, and management of large telecommunications networks.

NCR

NCR's strategic intention is to be a global leader in "enterprise-wide" information systems and services.

In enterprise-wide computing, different brands and types of computers, sub systems, applications and systems software operate together. Users share data and applications across the entire network, with access to information regardless of where it resides. NCR claims that its implementation of enterprise-wide computing also allows organisations to take advantage of advances in hardware and software while protecting their current information systems investment.

NCR claims a unique market position as a provider of end-to-end systems, from pen-based note pads to massively parallel enterprise servers, all based on industry standards. According to NCR, some vendors also provide open systems, but are niche players, whilst other end-to-end systems providers do not have open, scalable systems.

The "New Way of Computing"

NCR sees part of its product portfolio as an answer to modern needs. The old way was characterised by proprietary systems, "islands of automation," dumb terminals, and unconnected single-application PCs.

Since the early 1980's, NCR has provided businesses with an open environment in which intelligent work stations are connected to

multiple servers which handle several applications. It claims to have been the first company to use a client/server architecture, to have a complete microprocessor-based product line, and now to be a leader in parallel processing.

NCR's implementation of the New Way Of Computing includes: Open Systems, Client Server Architecture, Scalable Power, Very Large Databases, Enterprise Networks, Mobile Computers and Imaging.

It also claims that R&D spending has given it a leading position in:

- Large-scale systems design and architecture
- Very large relational databases
- Cooperative software
- Networking products and services.

NCR Products

These are the overall groups:

- **Systems 3000** - A range of systems from notepads and PCs to parallel-processing enterprise servers .
- **Cooperative Computing Software** - Innovative enterprise integration software.
- **Networking Products** - A comprehensive set of networking and connectivity products.

Cooperative software provides an integrating environment for NCR's Open Cooperative Computing Architecture. It is grouped into four major categories.

- **Information Access Services** - To give users access to other systems in the enterprise.
- **User services** - To integrate the user with the information processing system to improve productivity and effectiveness.
- **Application Services** - To allow developers to integrate existing applications and produce new low-cost cooperative computing applications rapidly.
- **Network Services** - To provide a number of local area network and wide area network options.

NCR also specialises in industry-specific equipment for the financial services and retail sectors, including ATMs, teller workstations, retail terminals and scanners.

Professional Services

NCR Cooperative Support Services include:

- Customer Support
- Customer Education and Training
- Business Planning
- System Integration
- Network Services.

Strategic Analysis

Company Direction

AT&T aims to increase its global coverage and to become a key player in networked computing, particularly in transaction-intensive industries.

AT&T must meet its customers need to manage information by providing unequalled facilities for processing, storage and transmission of voice data video and text. NCR increases AT&T's ability to provide services with its global network. NCR's expertise in very large data base management and microprocessor technology for example bring new capabilities to the network.

In addition NCR's global service and support capabilities are AT&T's ability to provide products and systems world-wide.

NCR provides AT&T with a significant presence in the computer market. AT&T's own computer activities were believed to be loss-making, and were merged with NCR.

AT&T's activities have historically been focused on the U.S.A., though the company will undoubtedly use NCR and AT&T Istel as vehicles to expand its coverage of product and service markets in Europe .

NCR generates 28% of its revenues in Europe, but its penetration of the European software and services market and in particular the systems integration area is limited.

Much work remains to be done before AT&T and its subsidiaries become a major force in systems integration in Europe.

Strengths and Weaknesses

The weaknesses of AT&T relate to two factors:

- First, the traditional services that AT&T provides are subject to regulatory approval by the Federal Communications

Commission (FCC). This gives competitors advance knowledge of service offerings and pricing, and the right to object to any provisions they believe to be anti-competitive.

- AT&T has to do battle with its own internal bureaucracy - a legacy of its monopolistic days. It takes great effort to respond to changing opportunities and markets. This reduces AT&T's ability to consistently focus its efforts to achieve its strategic goals.

AT&T's most significant strengths are its capabilities and technical expertise in large-scale telecommunications. Few, if any, of its competitors can match AT&T in this area. AT&T has extensive resources to meet most needs relevant to the design, development, and management of telecommunications services; and it has a large nationwide customer base in the U.S. as a market for its services. Also, AT&T has begun to form long-term relationships with other manufacturers and services vendors that complement AT&T's capabilities and strengthen its competitive stance.

AT&T has limited past experience in designing, developing, implementing, and operating major applications software systems. However, AT&T including NCR should not be considered either a niche-market participant or even primarily a telecommunications services and facilities provider. Rather, it now appears that AT&T intends to compete fully in all aspects, including the SI segment of the information systems market.

With its economic strength, its depth of telecommunications expertise and growing breadth of capabilities augmented by its alliances, AT&T must be considered a major participant in the SI market.

NCR's strengths are its expertise in meeting the needs of the financial services and retail vertical industries, its emphasis on client relationships, its support for open systems, and the breadth of its capabilities supported by strategic alliances. Also, NCR has a large customer base in the financial services and retail industries.

One weakness that NCR may have is a lack of expertise outside the financial and retail sectors.

Conclusions

AT&T undoubtedly has the ambition to become a major vendor of both telecommunications and information services throughout the world, and is prepared to invest heavily to achieve this aim.

AT&T showed its determination to become a major player in the information services market with its acquisition of NCR.

At present AT&T and its subsidiaries are not significant players in the systems integration market in Europe. Much of AT&T's recent effort in Europe has been devoted to developing the organisation's network services and telecommunications capability across Europe.

Apart from projects with a high electronic information content, it is unlikely that AT&T will become a significant player in the systems integration market over the next few years. However the company could significantly improve its position in network services and particular niches within the information services market.

(d) Strategic Assessment - AT&T

AT&T has for some time pursued a strategy based on the convergence of its immense strength in telecommunications and information systems. Attempts to do this organically and through joint ventures have failed and it is only with the acquisition of NCR that it established a serious position in computer related markets.

In Europe its acquisition of ISTEEL and subsequently inter alia DATAID have opened up a beachhead into the European market for computer based services. But financial results have disappointed.

AT&T has publicly stated ambitions to grow their European computer services based business to become amongst the top five vendors in the course of the decade. A very significant financial commitment to major acquisitions among the top ten vendors would be required to achieve this.

COMPANY PROFILE

AT&T ISEL LIMITED

Grosvenor House
Prospect Hill
Redditch
Worcs B97 4DQ
Tel: 0527 64274
Fax: 0527 62399

Chairman & Chief
Executive: Peter Teague
Status: Subsidiary of AT&T
Number of employees: 4,000
Revenue: (FYE 31-12-92) £235 million

The Company

Istel started life in 1979 as BL Systems Ltd. It was formed from the IS department of British Leyland, creating an organisation dedicated to computing, communications and systems services. The company was wholly owned by British Leyland (and subsequently the Rover Group).

The company adopted the name Istel in 1984. In June 1987, a management-led employee buy-out from the Rover Group took Istel into the private sector. In November 1989 the company was acquired by AT&T, the largest telecommunications company in the U.S., and adopted the name AT&T Istel in March 1990.

Today AT&T Istel employs over 4,000 staff in Britain, the U.S., Belgium and Germany.

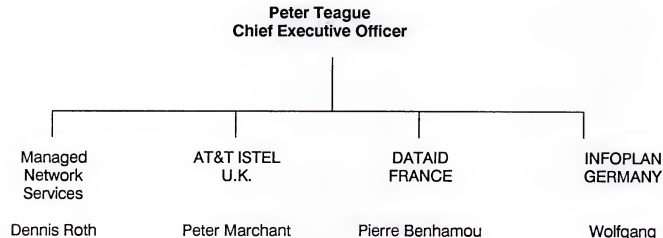
AT&T Istel is one of the major information technology services companies in Europe and in 1992 its turnover exceeded £200 million serving public administration and the industries of manufacturing, financial services, health care, travel and aerospace. Its managed network covers Europe.

Organisational Structure

The overall organisational structure of AT&T Istel is shown in Exhibit A.

Exhibit A

AT&T ORGANISATIONAL STRUCTURE

Acquisition
History

AT&T Istel plans to grow its revenue to ú1 billion within five years and by the end of the century it expects to be in the top three European IT services companies, which means growing to £1.5 billion.

One of the measures put in place to achieve this impressive growth was the establishment in 1991 of the European Development Group. Its task is to ensure that the company is positioned to achieve revenues from non-U.K. sources of £500 million by the end of 1995. The aim is to create a significant presence in continental Europe in the financial services, manufacturing and health care sectors.

Initially the growth will be achieved through an acquisition-led strategy. The primary target countries will be Germany, for manufacturing systems, and France, for financial services. These two countries have been selected because they account for half the total IT software and services in continental Europe.

In 1992 the U.K. operation had 1,700 employees and revenues of £132 million.

AT&T Istel has made several important acquisitions in the U.K. over the years, but in 1991 it made its first acquisition in continental Europe with the purchase of Infoplan in Germany.

Infoplan, based in Cologne - with offices in Stuttgart and Jena, is a software house with a 1991 turnover of DM 45 million that employs some 180 people. The main areas of specialisation are computer-integrated-manufacturing, production planning and control, facilities management and consultancy.

In March 1992, Infoplan was joined by CAB-Computeranwerndungs-Beratung GmbH. CAB is a software house specialising in providing applications programs, primarily based on the UNIX operating system. It also provides associated services, including bespoke developments and training to manufacturing industry. The UNIX connection suits Istel's AT&T parentage, and complements other areas of AT&T Istel that also specialise in developing systems using this platform. CAB's revenue in 1991 was DM 20 million and the head-count was 100. It has offices in Essen, Herrenberg and Vienna.

In 1992 AT&T Istel acquired the French company Dataid, a major supplier of IT services with 1,500 employees and a turnover of approx £70 million. The company has an established presence in the French outsourcing market. Overall, Dataid specialises in professional services, facilities management and industrial, scientific and technical systems.

Other acquisitions in 1990 and 1991 include:

- Computer Systems Development (CSD) - a vendor of production management software products for the discrete manufacturing sector
- Daton Systems Ltd - a Unix-based systems house
- WP Associates - a supplier of Oracle-based applications
- Chorus Software - a supplier of financial accounting software.
- Belmin Systems of Bridgwater, Somerset, a software house specialising in providing purchasing systems for local and central government agencies.
- Qa Business Services, which had a three and a half year contract to run a major data centre for the West Midlands health authorities and the waiting list project for the NHS.

Recent Major Projects

AT&T Istel's major systems integration projects tend to lie in the manufacturing sector, particularly in the automotive sector, where AT&T Istel has designed and implemented many of the production management and shopfloor systems supporting its former parent's - the Rover Group - manufacturing activities. The company has also won a number of contracts of this type outside the Rover Group. Examples of such projects include:

- the provision of a fully integrated system for manufacturing, planning and control for McVities
- the provision of a production monitoring system for Wiggins Teape.

AT&T Istel estimates that it holds 55% of the available outsourcing market in the U.K. health sector.

The company has major contracts with Trent RHA and West Midlands RHA, as well as with a wide range of District Health Authorities.

Products and Services

AT&T Istel's major offerings include the following:

- A wide and constantly growing range of value-added and data services.
- A pan-European managed network service, recently announced by AT&T, which will be supplied through AT&T Istel. The first European Network Management Centre has been built at Istel's headquarters in Redditch.
- Computer-Integrated Manufacturing skills throughout the U.K.
- The Infotrac network, which is one of the largest private data networks in Europe and carries some 3 million user sessions each month.
- Application development and project management.
- The Witness simulation system, which is designed to be used by non-computer staff, and is the decision support system used in many industries.
- Network services to the travel industry which are used widely in the U.K., carrying over 70% of the holidays booked electronically.

- AT&T Easylink Services, which brings together the messaging skills of AT&T, AT&T Istel and Western Union. The unit offers electronic data interchange, electronic mail and other enhanced messaging services, such as AT&T Enhanced Fax, on a global basis.
- Applications and communications links that enable banks and retailers to complete the entire circle of trading links by allowing stores (from electronic point of sale), head office, suppliers and banks to exchange sales and financial data electronically.
- The management of computers and networks for users - systems operations. AT&T Istel's experience covers managing and maintaining voice and data networks, and running facilities with IBM, DEC and ICL hardware. The customer base includes the automotive manufacture and health care sectors, household goods manufacturers and distributors, retailers, financial agencies and database providers.

The Communications and Data Centre, from which many of the company's services are provided, is one of the most advanced and sophisticated in Europe with more than £30 million worth of computer and communications equipment.

Financial Information

Exhibit B provides a five-year financial summary for AT&T Istel

Exhibit B

5-YEAR FINANCIAL SUMMARY (FYE 31-12), AT&T ISTEEL (UK Millions)

YEAR	1988	1989	1990	1991	1992
Revenues	85	109	130	173	235
Annual Growth Rate (Percent)	23	28	19	33	36
Profit Before Tax	8.0	N/A	N/A	N/A	N/A
Annual Growth Rate	60	-	-	-	-
Revenues per employee (£000's)				64	59

Exhibit C

1991 MARKET ANALYSIS BY INDUSTRY SECTOR

INDUSTRY SECTOR	REVENUES (€M)	PERCENT
Rover Group	40	23
Manufacturing	30	17
Finance & Retail	30	17
Health	25	14
Travel	12	7
Other Automotive	5	3
Cross Industry	31	18
TOTAL	173	100

Source: AT&T Istel

Note: Numbers are rounded

Exhibit D

1991 MARKET ANALYSIS BY PRODUCT

PRODUCT	REVENUES (€M)	PERCENT
Computer Applications Processing	50	29
VADS	45	26
General Systems	40	23
Systems & Consultancy	38	22
TOTAL	173	100

Source: AT&T Istel

Exhibit E

1992 REVENUE ANALYSIS BY GEOGRAPHY

COUNTRY	REVENUES* (\$ Millions)	PERCENT
France	125	34
Germany	35	9
U.K.	205	55
Total Information Services	370	100

*INPUT estimate

Note: Numbers are rounded

Market
Analysis

Exhibits F and G provide estimates of the company's revenues broken down by delivery mode and INPUT's industry classification.

Exhibit F

1992 MARKET ANALYSIS BY DELIVERY MODE

DELIVERY MODE	REVENUES (\$ Millions)	PERCENT
Application Software Products	22	6
Turnkey Systems	37	10
Professional Services	32	9
Systems Integration	19	5
Systems Operations	141	38
Network Services	100	27
Processing Services	19	5
Total Software and Services	370	100

Exhibit G

1991 MARKET ANALYSIS BY INDUSTRY

SECTOR	REVENUES (\$ Millions)	PERCENT
Discrete Manufacturing	111	30
Process Manufacturing	55	15
Retail Distribution	15	4
Wholesale Distribution	18	5
Banking and Finance	22	6
Insurance	30	8
Health care	63	17
Local Government	7	2
National Government	22	6
Business Services	22	6
Other Industries	4	1
Total		
Software and Services	370	100

Company
Strategies

(a) Company Direction

The company's mission is to become one of the top three European-based IT services companies. This requires a major and rapid expansion outside the U.K., particularly within continental Europe.

AT&T Istel has very aggressive growth targets. During 1992 the company was targeting growth in software and services from \$275 million in 1991 to reach \$2.2 billion by 1996. By this time, AT&T Istel planned to be one of the top three software and services vendors in Europe, alongside EDS and Cap Gemini Sogeti.

Difficult trading conditions were experienced in 1992. The mission remains unchanged except that the company no longer specifies the year in which it will be achieved.

The growth will be achieved through a combination of acquisitions and the sale of AT&T Istel's products and services in the wider European market.

In terms of services the company's emphasis is increasingly on network services and distributed open systems environments. The recent launch of AT&T Istel's pan-European managed network service is seen as providing a vital component of the infrastructure necessary to address these opportunities. In addition the company is keen to promote its outsourcing offerings, where the emphasis will in future be placed on network management and managing companies' transitions to distributed open systems environments.

AT&T Istel is committed to providing differentiated services in a number of key markets, including manufacturing, health care, travel, finance and retail.

(i) Consulting

AT&T Istel has in the past tried to market its consultancy skills in the manufacturing sector and in network consultancy. However both these initiatives faltered.

(ii) Partnerships

AT&T Istel has a tendency to acquire application software product vendors in support of its activities rather than adopting the more fashionable approach of establishing partnerships.

Key products include:

Manufacturing Sector:

- Processmarc - production management for the process manufacturing sector
- Impcon - production management for the discrete manufacturing sector
- Tracker - shopfloor data collection
- Tardis - time and attendance recording
- Witness - simulation
- AIM-Supervisor - SCADA for the process manufacturing sector
- Storeman - tooling control system.

Other Sector:

- Chorus financial software.

(b) Strengths and Weaknesses

The company's current strengths are summarised in Exhibit H.

Exhibit H

STRENGTHS - AT&T ISEL	
STRENGTHS	
Established pan-European network infrastructure	
Commitment to open systems	
CIM Expertise	
Financial resources of AT&T	
Established outsourcing vendor	

AT&T Isel has a major strength in networking and expects to become increasingly involved in network management utilising its fast developing pan-European networking capability.

Commitment to open systems - as part of AT&T, Isel has a policy of migrating all of its products which formerly ran under proprietary operating systems to run under Unix.

Another of the company's strengths is its computer-integrated manufacturing expertise gained through its association with the Rover Group.

To support its acquisition strategy AT&T Isel claims to have the necessary financial backing from its parent to achieve its goals and evidence of this is seen in the recent acquisition of Dataid.

AT&T Isel at year-end 1991 had approximately 30 outsourcing contracts with a total value of \$80 million per annum, a quarter of the company's total revenues. The company has a number of major contracts and has a strong presence in the outsourcing market, particularly in the Health sector, where it estimated that it held 55% of the available market.

(c) Conclusions

Overall, the main strands in the company's development towards its goals are:

- A move towards pan-European coverage by acquisition.

- Continued development of the European network, seen as an essential part of the infrastructure required for wide area distributed systems particularly when targeting multinational corporations.
- Increased targeting, possibly in conjunction with NCR in Europe, of the financial and retail sectors, and of the manufacturing sector in Germany.
- A major marketing campaign to increase prospect awareness of AT&T Istel, followed by greater emphasis on account management and the long-term targeting of specific major organisations.
- Building up of AT&T Istel's open systems development capability and application portfolio to provide the building blocks for a drive towards Information Systems Management.

(d) Strategic Assessment

AT&T Istel has a strategy of increasing its geographical coverage, which has significantly expanded its range of products and services through the acquisition of companies in the U.K. With the emphasis now on growth in Europe, one of the challenges for the company is to mirror its U.K. success in the wider European market. The company hopes to increase its revenues to £1 billion "over the next few years" and obviously this level of growth can only be achieved by an aggressive acquisition policy. Perhaps, the scale of the acquisition programme needs to accelerate to meet the company objectives.

In terms of future direction, AT&T Istel is likely to endeavour to increase its outsourcing market penetration in its other target sectors, particularly the financial and retail sectors. Indeed, creating some synergy with NCR could increase AT&T Istel's presence in these sectors.



COMPANY PROFILE

AXONE SA

Immeuble Central IV
1 avenue Montaigne
93167 Noisy-Le-Grand Cedex
France
Tel: +33 1 49 31 67 00
Fax: +33 1 45 92 03 00

President: Serge Vigier
MD: Gérard Jousset
Status: Subsidiary of IBM
Number of Employees: 1,300
Revenue (FYE 31-12-92): FF 415 million

The Company

Axone was founded as a joint venture between IBM, Sema Groupe and Paribas, in 1987. IBM held 50% of the shares. In April 1993 it became a wholly owned subsidiary of IBM France, which contributed its own systems and telecommunications network to the company.

The company operates only in France and has three main business areas:

- Systems operations (facilities management)
- Value-added network services including electronic data interchange (EDI)
- Disaster recovery services.

It claims IBM, Digital, Bull, and Unisys operating expertise.

**Financial
Information**

Exhibit A

FOUR-YEAR FINANCIAL SUMMARY (FYE 31-12) (FF MILLIONS)

YEAR	1989	1990	1991	1992
Revenue	135	190	323	415
Annual Growth Rate (%)	111	41	70	28
Net Profit		2.8	5.5	21

Source: Axone

INPUT LIBRARY

**Market
Information**

All 1992 revenues were generated within France.

Exhibit B**1992 MARKET ANALYSIS BY DELIVERY MODE, AXONE (FF MILLIONS)**

BUSINESS AREA	REVENUE	PERCENT
Systems operations	240	58
Processing services	85	20
Network services	55	13
Professional Services	35	8
TOTAL	415	100

Source: INPUT estimates

**Key Products and
Services**

Axone provides three main categories of service:

- Facilities Management
- Network services
- Disaster recovery services.

Facilities Management

This is the largest component of the company's revenues. Offerings cover different levels of service including:

- Production FM, (System Operations) which does not include software engineering.
- Complete FM, (System Management) which includes software development and maintenance.

Axone has 36 (own and client) computer sites, with hardware from IBM, DEC, BULL, UNISYS and UNIX platforms, providing total processing power of 4,000 MIPS in 1993. (Compared with 400 MIPS in 1992, before the 100% participation of IBM France.)

Network Services

Axone offers services based on:

- The Axone national network linking the main French towns
- The IBM Information Network covering 91 countries
- France Telecom and Transpac offerings
- Other comms systems (e.g., Minitel, computer networks and LANs.)

Offerings include:

- EDI applications in the field of technical drawings and other data for manufacturing
- Development and implementation of Minitel applications
- Network management services.

The company claims to be handling 80,000 users across over 150 user networks. One of its major contracts is to manage the IBM France network and its users.

Disaster Recovery

Disaster recovery services are also offered at a number of different levels, for IBM S390 and AS 400 machines. Axone claims market leadership in this area.

Offerings include:

- Services to allow users to formulate and maintain a Disaster Contingency Plan, leading to the possibility of users adopting one of the following service lines:
- A service based on an Activity Restart Plan (effectively a 'warm' restart procedure with a 'cold' restart - salle blanche - facility to back it up)
- A service based on an Uninterrupted Operations Plan (effectively a 'hot' restart offering immediate or almost immediate cut-over to an AXONE supported configuration in the event of a disaster)

Besides IBM itself, AXONE has major customers in the Transportation, Banking, Automotive and Insurance sectors.

**Company
Direction**

The company now has access to significant resources through its ownership by IBM. It presents itself as now being able to respond to client need by offering IBM consultancy, education and SI capability. Significantly IBM's Information Network - which operates in 91 countries - allows for an approach to clients with international communications requirements.

The company is forecasting very high growth: in July 1993 it expected revenue for the year to be FF 1 billion. In terms of staff, growth is the order of the day, as some 900 IBM staff were transferred in 1993 to Axone.

COMPANY PROFILE

BORLAND INTERNATIONAL, INC.

1800 Green Hills Road
P.O. Box 660001
Scotts Valley, CA 95067-0001
USA
Tel: 1 408 438 8400
Fax: 1 408 438 8696

President: Philippe Kahn
Status: Public
Number of Employees: 1,600 world-wide
Revenue: (FYE 31-3-93) \$463.9 million
European Revenue: \$200 million

European Headquarters
Borland Europe SARL
2 Rue Maurice Hartman
92130 Issy Les Moulineaux
France
Tel: 33 1 46 29 36 40
Fax: 33 1 41 2311 90

The Company

Borland is one of the world's largest personal computer software companies. A pioneer in the use of object computing technology, Borland's mission is to build the finest quality software products that enable the customer to access, manage and analyse data, and build mission-critical applications to run businesses.

Founded in 1983 in the U.S., the company went public on London's Unlisted Securities Market, and established a European headquarters in Paris. The initial public offering on the U.S. NASDAQ exchange came in December 1989.

With its acquisition of Ashton-Tate Corporation in October 1991, Borland is now one of the industry's largest personal computer software companies and supplier of database software. Currently there are Borland operations throughout the U.S., Europe, Asia, the Pacific Rim and Canada, and distributors carrying Borland products in Mexico, Central and South America, Eastern Europe, the Middle East and Africa.

Borland believes that advances in computer hardware, user interfaces and networks will revolutionise computing and that the best way for the user to take advantage is with a client/server solution with object-oriented applications and development tools. To this end, the company has formed a client/server division to provide best-of-breed products in each area, while embracing open standards, thereby allowing customers to "mix and match" products to best meet their needs.

Underlying each product is the strength of Borland's Object Component Architecture (OCA). This innovative strategy not only unites desktop products into a strong integrated information resource but provides the foundation to move into the era of Client/Server Computing. At the heart of this architecture lies the Interbase Engine which ensures interoperability among Borland products including Paradox, dBASE, Quattro Pro and Borland C++ . These factors make its software products a vital component of many businesses across a broad cross section of industries world wide.

Borland's product line includes:

PC Databases

Paradox has become Borland's biggest seller, with a 30% share of the database market in the U.S. Paradox 4.0 is available as a standard package, and network versions are also available. Paradox SQL link provides users with easy access to corporate data stored on a wide variety of computer equipment.

Borland also offers Paradox Engine, a programming tool that enables developers to integrate sophisticated database file access to custom software applications. Paradox for Windows fully exploits the event-driven nature of the Windows environment, facilitated by Borland's leading object-oriented development techniques, and incorporates features normally only found in expensive high-end databases. It features support for full referential integrity, a comprehensive forms and report design environment, and excellent support for text, graphics, multimedia, and object linking and embedding.

Borland has recently released version 2.0 of its popular dBASE IV database management system, which offers performance improvements of up to 10 times over previous versions of the product, as well as a number of new features.

Server Database

Borland's UNIX-based InterBase server, widely recognised as the most advanced server, is rapidly becoming the server of choice for such transaction-intensive industries as brokerage, banks and manufacturing.

IDAPI Connectivity

Borland's connectivity strategy extends to all major databases, from Oracle to Sybase to DB2 to provide a seamless, integrated data management system. Borland is currently working with IBM, Novell and WordPerfect, plus over fifty other companies who have joined the IDAPI (Integrated Database Application Programming Interface) initiative, to extend IDAPI's connectivity to all the components in a company's enterprise.

Languages

Borland provides the most complete line of development products for both professional developers and end-users.

Spreadsheets

Borland's Quattro Pro spreadsheet offers a high level of compatibility and productivity when used in conjunction with dBASE or Paradox. Quattro Pro can also be used as a powerful front end for NetWare LANs and SQL servers.

Borland Office for Windows is the first software suite to combine the three best-selling categories of PC software - word processing, spreadsheet and database - and will include WordPerfect for Windows, Quattro Pro for Windows and Paradox for Windows. It also marks the first time two major software companies have combined products into a single package.

Borland's philosophy is to help users achieve cost saving by producing the most cost effective, finest quality products in the industry.

Borland's sales for fiscal 1993 (ended March 31) were in excess of \$463 million. The fiscal year earnings reflect the introduction of Paradox for Windows and dBASE IV version 2.0 in the fourth quarter. Sales of Borland products for the growing Windows marketplace accounted for more than half of the company's fourth quarter revenues. Borland employs 1,600 people world-wide.

Organisational Structure

Borland's organisation is unusual in that product development is kept separate from product management and marketing. All the development groups report directly to Philippe Kahn, while the product management organisations are divided into business units.

Borland is organised into two business units:

- Desktop products
- Client/Server

Borland International's Key Executives are listed in Exhibit A.

Exhibit A

KEY EXECUTIVES

Philippe Kahn	Chairman, President and CEO
Alan Henricks	Senior VP: Finance and Operations; Chief Financial Officer
Doug Antone	Senior VP: Worldwide Sales
Spencer Leyton	Senior VP: Business Development
Richard Schwartz	Senior VP: Technology; Chief Technology Officer

Acquisition History

In September 1987, Borland acquired Ansa Software, developer of the Paradox relational database management program.

In October 1991, Borland acquired the Ashton-Tate Corporation and access to its large installed base of dBASE users.

In December 1992 Borland acquired dBASE-compatible technology, Arago, from WordTech Systems, Inc.

Key Products and Services

Borland's applications offerings include Quattro Pro, Borland's best-of-breed spreadsheet, and the Sidekick personal organiser range. Quattro Pro is seen as a rival to Lotus' 1-2-3 spreadsheet.

Quattro Pro 3.0 was released in 1990 and quickly began gaining market share. The new program was widely hailed for its display, powerful capabilities, extensive database and network support, and exceptional performance on less powerful computers. In February 1992, Borland released Quattro Pro 4.0. The new version combines powerful push-button power with advanced analytical tools so users can evaluate complex spreadsheet relationships more easily. Speed-bar controls provide immediate access to commonly-used functions, macros and commands. A Windows version of Quattro Pro was launched in September 1992.

The Sidekick personal organiser was launched in 1984 and Sidekick plus in 1988, as companies increasingly moved to desktop management software for time and task management. Borland also offers Sidekick PM, its presentation management version. An updated version of the product - Sidekick 2.0 - was designed in 1991 to interface with both electronic and paper-based organisations.

Languages

dBASE, Borland's industry standard relational database management system, as well as Borland's highly successful development tools including Turbo Pascal and Turbo Pascal for Windows, the Borland C++ family of products, and ObjectVision for Windows comprise the Languages Division.

In March 1992 Borland released dBASE IV version 1.5 for DOS, a powerful new version of its widely used database management system. The new version features mouse support, faster QBE (Query-By-Example) performance, increased work areas and an open architecture. The new version is Borland's first step in its commitment to the dBASE community. Borland continues to enhance dBASE with new versions and new capabilities, the latest being Version 2.0 released in May 93 along with a dBASE compiler for DOS.

In 1988 Borland targeted professional programmers with Turbo Pascal Professional, Turbo C Professional and Turbo Assembler & Debugger. Today, Borland offers a variety of new-generation programming languages for professional developers, including Turbo C++ 3.1, Borland C++ 3.1, Borland C++ with Applications Frameworks 3.1, Turbo Pascal 6.0, Turbo Pascal 7.0 (for entry level programmers to learn object orientation) and Pascal with Objects 7.0 (for professional developers). Borland also

provides versions of these products specifically designed for the Microsoft Windows environment.

In 1991, Borland introduced ObjectVision, an object-oriented visual programming tool that allows non-technical users to easily create custom Windows applications without writing a line of code. In June 1992, Borland released ObjectVision 2.0 for OS/2 2.0 and in September 1992 Objectvision Pro 2.1 for Windows.

Paradox

The Paradox division offers Paradox, a database system acquired with Ansa software in 1987. In just four years after the acquisition, Paradox became Borland's biggest seller and captured 20% of the database market.

Today Paradox 4.0 is available as a standard package; Windows and network versions are also available.

Paradox SQL link is a communications product that provides users easy access to corporate data stored on a wide variety of computer equipment. The latest version, Paradox SQL Link 1.1, provides additional connection to SYBASE SQL Server, the relational database management system from Sybase Inc.

Borland also offers Paradox Engine, a programming tool that enable developers to integrate sophisticated database file access to custom software applications. The latest version, Paradox Engine 2.0 was released in March 1991.

Interbase

The InterBase division is focused on developing and marketing Borland's InterBase server which it acquired with Ashton-Tate.

The InterBase Server is a relational database server that runs across multi-vendor networks in UNIX and VAX/VMS environments. InterBase is built on a multi-generational architecture that provides support for managing large amounts of complex data such as text, image and sound through BLOBs. InterBase also offers capabilities including true peer-to-peer architecture, highly efficient event alerters and "smart" automatic, two-phase commit and rollback.

In March 93 Borland confirmed its commitment to the Novell NetWare operating system through the formal announcement of development of the InterBase relational database server as a NetWare Loadable Module (NLM) for NetWare 4.0, Novell's next generation of industry-leading NetWare technology. The InterBase

NLM server has been designed to offer high-performance database functionality for NetWare 4.0 networks.

In February 1993 Borland also introduced Borland C++ for OS/2, an object-oriented development tool for 32-bit, OS/2 applications. Borland C++ rounds out the company's cross platform strategy by providing developers with a fourth-generation, award-winning C++ compiler for the Presentation Manager environment.

Borland C++ for OS/2 offers all of the tools necessary to develop OS/2 2.0 applications using C or C++. Borland C++ for OS/2 shares a common heritage with Borland C++ 3.1 by including a number of powerful features such as a graphical user interface (GUI) based integrated development environment (IDE), global optimization, support for C++ 3.0, object-oriented debugging, precompiled headers, the ability to transfer to user-defined programs and tools, and smart project management.

Financial Information

Exhibit B

Borland International Consolidated Revenues five-year Financial Summary (FYE 31-3)

	1989	1990	1991	1992	1993
Revenues (\$M)	397.8	378.6	457.3	482.5	464
Annual Growth rate (%)	14	(5)	21	6	(4)
Profit before Tax (\$M)	66.3	(16.7)	17.9	(124.5)	(40.7)
Annual Growth rate (%)	(18)	(125)	207	(795)	67
Profit after Tax (\$M)	41.3	(16.6)	4.8	(110.4)	(49.2)
Annual Growth rate (%)	(7)	(140)	129	(2,400)	55

Note: Numbers are rounded

Fiscal 1993 quarter four and year-end results reflect the introduction, in the quarter, of Paradox for Windows and of dBASE IV Version 2.0. With the release of Paradox for Windows and the sales of Quattro Pro for Windows and of Borland C++, more than half Borland revenues in the fourth quarter derived from products for the Windows market.

Market
Analysis

Exhibit C

Market Analysis by Geographic Region 1992, 1991 and 1990 (\$ millions)

Geographic Region	1992		1991		1990	
	Revenues	Percent	Revenues	Percent	Revenues	Percent
U.S.	246.1	51	228.6	50	189.3	50
Non-U.S.	236.4	49	228.6	50	189.3	50
Total	482.5	100	457.3	100	378.6	100

Source: Borland

Note: Numbers are rounded

Input estimates that Borland International's European revenues fell to \$190 million in 1992.

Exhibit D

1992 MARKET ANALYSIS BY COUNTRY MARKET
EUROPEAN SOFTWARE & SERVICES (\$ MILLIONS)

COUNTRY	REVENUE	PERCENT
France	30	16
Germany	60	32
U.K.	40	21
Italy	20	11
Netherlands	9	5
Belgium/Lux'	5	3
Spain	8	4
Switzerland	8	4
Austria	4	2
Sweden	5	3
Denmark	3	2
Norway	2	1
Finland	2	1
Ireland	1	1
Portugal	1	1
Greece	1	1
TOTAL INFORMATION SERVICES	190	100

* INPUT Estimates

Note: Numbers are rounded

Exhibit E

**1991 Market Analysis by Input delivery mode
European Software and Services**

DELIVERY MODE	REVENUE (\$M)	PERCENT
Systems Software Products	190	100
TOTAL	190	100

* INPUT Estimates

**Company
Strategies****(a) Company Direction**

Advances in computer hardware, user interfaces and networks offer the potential for better information management systems than ever before. Therefore managing information in the 1990s will provide unparalleled opportunity and challenge for corporate IS. Borland believes that these technology developments will revolutionise computing and that the answer is the client/server solution with object-oriented programming.

So Borland has formed a client/server division responsible for research, development and marketing of Borland's client developer tools, middleware and server products in client/server configurations. Headed by Rob Dickerson, the aim of the division is to provide best-of-breed solutions in each area, while embracing open standards, thereby allowing customers to "mix and match" products to best meet their needs.

Products to be managed by the client/server division include the InterBase server; upcoming SQL link products for Windows and current SQL links for DOS; IDAPI middleware and client developer kits based on desktop products such as Paradox for Windows and products under development, such as dBASE for Windows.

The client/server market is expected to grow substantially in the years ahead, according to leading market analysts.

Borland anticipates that the client/server market will grow at an annual compound growth rate of 70% from 1992 through 1996.

Client/server information systems tap into the power of distributed computing and take advantage of the available power from the desktop to the mainframe. Therefore, approaches which fully utilise new hardware and software are required.

Borland's object-oriented client/server approach and BOCA (Borland Object Component Architecture) provide end users and application developers with an integrated, distributed application solution which spans from the PCs to proprietary mainframes. BOCA gives users tremendous productivity, reliability and usability advantages with its object-oriented tools. InterBase, Borland's high-end relational database management server, is designed for optimum performance in networked computing environments, extending the client/server model by providing multi-client to multi-server connection so that network managers and end-users can store data locally or remotely. To ensure the integrity of this architecture, a transaction occurs on all clients and servers or not at all and replication is greatly reduced.

Partnerships

Since 1991 Borland has formed a number of strategic relationships with vendors, examples of which are discussed below:

Borland forged its first strategic relationship with IBM in May 1991, to develop specific object-oriented programming languages and development tools for OS/2. In June 1991, Borland and IBM extended their business relationship by forming a new agreement under which Borland will develop the next generation of ObjectVision for OS/2 2.0.

Also in 1991, Borland launched its SQL Partners Programme. The new programme aims to strengthen commitment to the market by providing joint sales and marketing opportunities (e.g., between Borland and partners who develop software applications using Borland's Paradox and SQL Link database products).

In February 1992, Borland, together with Apple Computer, Lotus Development and Novell entered into an agreement to jointly develop and support the Vendor-Independent Messaging interface (VIM).

In July 1992 Borland entered into a multi-year site licence agreement with Price Waterhouse to supply its desktop software products to over 25,000 PCs.

In December 1992 Borland acquired all the rights to WordTech's Arago line of database management software.

In February 1993 Borland C++ for OS/2, an object-oriented development tool for developing 32-bit, OS/2 applications, was launched in conjunction with IBM.

Integrated Database Application Programming Interface (IDAPI) members including Borland, IBM, Novell and WordPerfect delivered a Working Draft Specification in February 1993. They also announced 15 new IDAPI partners; Adlin Research, Inc; CADWorks; CINCOM Systems Inc ; Cross Access Technologies; TTT Fulcrum Technologies; Ingres Corporation; Informix Corporation; New Intelligent Workstations; Ryobi Systems Co., Ltd; Seiko Epson; SYBASE; Sterling Software, Inc; Technosis, Inc; Twin Sun, Inc.; UNIX Systems Laboratories.

IDAPI is a data integration architecture for accessing critical business information, including SQL-based data and non-SQL (or navigational) data. IDAPI enables corporate developers and Independent Software Vendors (ISVs) to develop enterprise-wide applications for a wide range of platforms including OS/2, NetWare, DOS and Windows.

(b) Strengths and Weaknesses

Borland's new strengths are summarised as follows:

- Strong Technical Innovation & Expertise
- Strong Set of Products
- Large Installed Base
- Strong Customer Orientation
- Wide geographical coverage and strong distributor network.

Borland has a strong reputation as a company committed to development and enhancement of software for the PC environment.

Borland frequently uses the phrase "Software Craftsmanship", a watchword of founder Philippe Kahn which succinctly states the company's product philosophy. It is no coincidence that Borland's first product, Turbo Pascal - as well as many successful subsequent offerings - focuses on tools for building efficient and elegant software applications.

Borland's language products, which other software developers use to write programs, dominate their niche. The successful Quattro Pro Spreadsheet program has proved a significant competitor to both Lotus 1-2-3 and Microsoft Excel.

Borland's next generation of products to be released in 1993 are expected to be just as innovative as its existing offerings.

Borland has a strong product line which has enabled the company to become a leading desktop software developer. Turbo Pascal was Borland's first product and today is the de facto Pascal programming standard world-wide.

Borland's real growth has been in the spreadsheet market. Quattro launched in 1987 and Quattro Pro introduced in 1989 are direct competitors to Lotus 1-2-3 and have taken a hefty chunk of the spreadsheet market.

Borland has a large installed customer base gained through the company's aggressive pricing strategy. When Quattro Pro was launched, Borland offered the package at \$100 to users of Lotus 1-2-3, increasing sales to approximately 50,000 a month, thus increasing its customer base.

Also, Borland's acquisition of Ashton-Tate and its established database product dBASE has doubled the company's revenues and increased its share of the PC database market place.

Another of Borland's strengths is its strong focus on customer needs, to the extent that it cites buying Ashton-Tate because Paradox users wanted more interoperability with Ashton-Tate's dBASE.

Although founded in the U.S. less than 10 years ago Borland has built up a strong presence outside of the U.S. In Europe, Borland has subsidiaries in Belgium, Denmark, France, Germany, Italy, The Netherlands, Spain, Sweden and the United Kingdom. Borland also sells its products through distributors in all countries, including countries where it has a subsidiary.

A tangible result of Borland's emphasis on total product quality and performance is its "best-of-breed" applications and languages. They are designed for superior performance, add value through being "open" across platforms and function the way people not trained in technology would use a computer.

Key to Borland's software craftsmanship is the use of object-oriented programming (OOP). This, coupled with Borland's strategy of creating the most "open" systems available, its involvement in the IDAPI initiative, which is a working partnership to provide a standards based method for integrating, manipulating and managing data residing in different databases and on different operating systems, and its client/server strategy using BOCA

**Corporate
Milestones**

(Borland Object Component Architecture), makes its software products a vital component of many businesses across a wide cross-section of industries around the world.

1983 Founded by Philippe Kahn, a French mathematician.

1984 Launched Sidekick, the desktop organiser selling 80,000 copies in the first four months; succeeded in 1992 by Sidekick 2.0 designed to interface with both electronic and paper based personal organisers.

1985 Renounced copy protection and instituted an unconditional 60-day, money-back guarantee on all software.

1986 Went public on London's Unlisted Securities market and established a European headquarters in Paris.

1987 Launched Turbo Basic and Turbo C.

Quattro: The Professional Spreadsheet shipped later that year; sold 100,000 copies in 90 days.

1987 Acquired Ansa Software, developers of the Paradox relational database management program, Paradox 386, the first program to fully exploit the power of the Intel 386 microprocessor shipped in November 1987; this has become the cornerstone of Borland's industry leadership in database software.

1988 Moved into the professional programmer market with Turbo Pascal Professional, Turbo C Professional and a new Turbo Assembler and Debugger.

1989 December 20 - announced initial US public offering for 2,252,000 shares of common stock at \$10.00 per share.

1990 Quattro Pro 3.0 was released and gained valuable market share.

1991 Acquired Ashton-Tate Corporation, which further cemented its leadership position in database software with the installed base of dBASE users. The acquisition also marked Borland's entry into the database server market with InterBase.

1991 Launched ObjectVision, an object-oriented visual programming tool for non-technical users.

1992 Shipped dBASE IV 1.5 for DOS, a powerful new release of the most widely used database management system. The new version is

Borland's first step in Borland's commitment to the dBASE community, which exceeds four million world-wide.

Launched Quattro Pro for Windows

1993 Ships Paradox for Windows, dBASE IV 2.0, C++ for OS/2 and ports InterBase for Novell's Netware 4.0

Ships Borland Office for Windows, following international agreement with WordPerfect.

Borland's mission to provide the best tools to help people manage data, analyze data and build mission-critical applications has been clearly demonstrated in the last year by its new alliance with WordPerfect, its commitment to client/server solutions, its development of the IDAPI initiative and its acquisition of dBASE-compatible technology from WordTech Systems.

The effectiveness of the direction that Borland is taking has been reflected in the encouraging figures in the fourth quarter of 1992.

Conclusions

Borland prides itself on a flat, non-bureaucratic structure, which is made possible in part by heavy use of electronic mail to facilitate communication across traditional lines of authority.

Borland was masterminded and continues to be led by Philippe Kahn who inspires a great deal of loyalty amongst his management team and staff. His strong commitment to building quality software has placed him amongst a small group of executives in the software industry who have an intuitive understanding of computer software, a gut sense of what customers will want and the technical knowledge to carry it out.

Borland has also proved adept at making acquisitions and absorbing technologies developed elsewhere. Its most recent acquisition, Ashton-Tate, has improved its position in the database market and brought with it a number of quality products.

However, the acquisition has also brought some costly surprises. Borland took a \$103 million restructuring charge - considerably more than the \$50 million initially anticipated - to cover the cost of absorption and of shutting down its Torrance Headquarters.

Borland now faces a number of challenges, the successful integration of Ashton-Tate and the release of its much talked about new generation of products (of which early reviews were

favourable) which are already months late and which are seen as an indication of where the company is going.

Borland may also face increasing competition from Microsoft and Computer Associates who, during the first half of calendar 1992, announced the acquisitions of Fox Software, Inc. and Nantucket Software, respectively. Both Fox and Nantucket produce database software products which compete directly with dBASE. The effects of these acquisitions is not yet known. Sales of the company's dBASE and Paradox products may be adversely affected by uncertainty in the market. In addition, because both Microsoft and Computer Associates have substantially greater financial, management, marketing and technical resources than Borland, it may experience far greater competition, including, but not limited to, price competition.

COMPANY PROFILE

BSO/ORIGIN

Kon. Wilhelminalaan 3
P.O. Box 8348
3503 RH Utrecht
The Netherlands
Tel: 31 30 911 911
Fax: 31 30 949 010

President & CEO: Eckart J. Wintzen
Status: Private
Number of Employees: 4,112
Revenue (FYE 31-12-92): DFL 600.83 million

The Company

BSO/ORIGIN was originally a joint venture between BSO/Beheer bv and N.V. Philips Gloeilampenfabrieken (Philips). Philips contributed its international systems development department PASS, while BSO contributed its international operations. The joint venture forms part of BSO's strategy to penetrate the international market.

Agreement was reached with Philips on the transfer of 50% of the shares in Origin Technology in Business bv to BSO/Beheer bv in exchange for shares in BSO. For this purpose, BSO/Beheer bv increased its share capital by 8.33% by means of a share issue to Philips on April 1, 1991.

The company now operates in 14 countries in the Far East, North and South America and Europe.

Transferring full responsibility of ORIGIN to BSO has made it easier for the company to re-organise its activities internationally in response to market demands.

Organisational Structure

BSO/ORIGIN is a strongly decentralised organisation which operates in small and highly autonomous units. Apart from their commercial tasks, these operating companies are left to carry out their own policy within the framework of a number of quality standards drawn up centrally. The companies are only 'dependent' on the holding company for funding.

BSO/ORIGIN companies' activities have been categorised worldwide on the basis of two criteria: geographical (by country and, in some cases, sub-divided into a number of specific regions within a country) and by the nature of services offered.

All non-Dutch activities are carried out under the Origin umbrella. In the Netherlands, the company trades as BSO. Both are 100% subsidiaries of BSO/Beheer bv.

Exhibit A lists the number of employees in each job category.

Exhibit A

1992 EMPLOYEE ANALYSIS BY JOB CATEGORY
Source BSO

JOB CATEGORY	NUMBER OF EMPLOYEES
Trainee	39
Programmer	341
(System) Analyst/Programmer	675
System Analyst/Technical Designer/ System Programmer	852
System Designer/Project Manager/ Information Analyst	526
Senior Specialist/Senior System Designer/Project Manager/ Information Analyst	377
Project Manager/ (Technical) Consultant	208
Senior Consultant/Manager	140
Other	183
TOTAL	3,341

Source: BSO

ORIGIN collaborates with the local companies in the various countries on cross-border projects, to which it also supplies world-wide support in specialist areas and for specific products. It also acts as account manager for a number of multinational clients.

The BSO companies, targeted at the Dutch markets, mainly operate in the field of Applications Facilities Management, where the service supplier is responsible and accountable for an organisation's operational automation tasks.

Recent Acquisitions

In October 1991 BSO/ORIGIN acquired a 20% share in the German consultancy MCP AG, and a further 20% in January 1992. The holding will increase again to 40% in 1993. This is significant for development of business in SAP implementation.

In 1992 the company acquired 20% share in CDP Information Systems Pty Ltd in Australia to strengthen its position as a systems integrator in the Far East. CDP achieves 50% of its sales in Asia.

It also acquired software development companies in France (Secilog Sarl) and Spain (SDS SA); a 12.5% share in EDIsoft SA, a Portuguese company in the air traffic control business. It increased its participation in IMPACT from 45% to 90%.

Key Products and Services

The BSO/ORIGIN operating companies offer specialised services to their respective markets. The companies are as follows:

Quality Innovation renders a variety of services in the field of quality management and control. This autonomous subsidiary has a coordinating function within BSO/Origin, in addition to which it also operates commercially in the 'external' market.

Information Systems companies specialise in administration and financial automation.

Automation Technology companies specialise exclusively in technological and techno-scientific automation problems, including real-time systems and data communication applications.

Management Support companies provide specialist services in the field of management information systems.

Advies companies advise the management of companies and government departments on a range of organisational matters directly or indirectly related to the introduction of information technology.

Business Communications undertakes (audio-visual) communications projects directly or indirectly linked to the introduction of new techniques or technologies.

Artificial Intelligence specialises in the use of knowledge-based technology in large automated systems, either stand-alone expert systems or knowledge-based systems forming part of larger systems.

Instruction Technology specialises in the use of automated systems - including interactive media - for learning and training.

CAT BV is active in the field of interactive media (video discs, DVI, CDROM, CD-I and WORM) in automation, communications and document automation.

Aerospace & Systems carries out defence, space and air traffic control projects on the domestic and international markets.

Applications Facilities Management companies supply customised sets of automation services on a long-term "co-makership" basis.

Hyperion-W.W. & Associates, in which the company has a 40% holding and in which KLM Royal, Dutch Airlines is also a shareholder. It operates globally, supplying high-volume transaction processing software, especially for airline booking systems, the banking industry and travel agencies.

ISES International (Information Software Engineering Support) is a joint venture with KPMG to develop and run training courses for IS specialists and users.

IMPACT AUTOMATISIERING, in which BSO/Origin now has a 90% interest, provides services and products for local and wide-area computer and communications networks.

BSO/Origin also has interests in companies providing products and services in the fields of automatic guided vehicles, logistics control software and SAP implementation.

Not all BSO/Origin services are available outside the Netherlands (where about 50% of the operating companies are located). However, it is the long-term intention of the company to be able to offer a range of services in line with the offering in the Netherlands in the other countries in which it operates.

Financial
Information

Exhibit B

FIVE-YEAR FINANCIAL SUMMARY (FYE 31-12) (DFL MILLIONS)

YEAR	1988	1989	1990	1991	1992
Revenue	163.5	227.9	392.4	541.8	600.8
Annual Growth Rate (%)	19	39	72	38	11
Profit before Taxes	24.1	29.5	31.8	34.3	25.6
Annual Growth Rate (%)	22	22	8	8	(25)
Profit after Taxes	14.7	18.5	21.0	14.3	14.8
Annual Growth Rate (%)	31	26	14	(32)	3

BSO/Origin attributes the decrease in profit after taxes to the extensive re-organisation carried out in the second half of 1992. Sales in the Dutch market rose - in terms of organic growth - by 2% but profit contribution improved on 1991. Sales outside the Netherlands rose by 23% in 1992 to Dfl 234 million. But international turnover does not yet contribute to group profit. Generally sales to Philips fell as a share of total sales, in line with company policy.

Market Analysis

Exhibit C

1992 MARKET ANALYSIS BY INDUSTRY SECTOR

INDUSTRY SECTOR	REVENUES* (\$ MILLIONS)	PERCENT
Discrete Manufacturing	140	42
Process Manufacturing	35	10
Transportation	20	6
Utilities	5	1
Telecommunications	20	6
Wholesale Distribution	5	1
Banking and Finance	35	10
Local Government	15	4
National Government	20	6
Business Services	30	9
Other Industries	10	3
Systems Software Products	5	1
TOTAL SOFTWARE AND SERVICES	335	100

*INPUT estimate of software and services revenues

Note: Numbers are rounded

Exhibit D

1992 MARKET ANALYSIS BY INPUT DELIVERY MODE

	REVENUES* (\$ MILLIONS)	PERCENT
Systems Software Products	5	1
Application Software Products	10	3
Turnkey Systems	50	14
Professional Services	150	43
Systems Integration	45	13
Systems Operations	10	3
Network Services	5	1
Processing Services	60	17
Total Software and Services	335	97
Equipment Services	5	1
Total Information Services	340	99
Equipment/Other Revenues	5	1
TOTAL EUROPEAN REVENUES	345	100

*INPUT estimate of software and service revenues

Note: Numbers are rounded

Exhibit E

1992 MARKET ANALYSIS BY COUNTRY MARKET

COUNTRY	REVENUES* (\$ MILLIONS)	PERCENT
France	5	1
Germany	15	4
U.K.	20	6
Italy	15	4
Netherlands	254	74
Belgium/Lux'	28	8
Spain	3	1
Switzerland	3	1
TOTAL INFORMATION SERVICES	345	100

*INPUT estimate of software and services revenues

Note: Numbers are rounded

Company Strategies

(a) Company Direction:

BSO/Origin's prime objective is to provide high-quality services both to commerce and industry and to government, with a view to supporting the principle of introducing new technology - in the broadest sense of the word.

This support is extended in the form of consulting, project management, system development, implementation, education and training.

In 1991 BSO/Origin undertook an extensive re-organisation of its business. In 1990 BSO entered the international services market under the name ORIGIN Technology in business. By the end of that year, the company felt that the operation was too complex and to a certain extent uncontrollable. It was therefore felt necessary to make a number of changes. The restructuring cost approximately DFL 9.2 million after tax.

BSO/ORIGIN has now fully implemented these measures and expects a reduction in cost from 1992. BSO ORIGIN has geared its new operation towards internationalisation of its services.

The company is aiming to provide all its services on an international level through a network of local offices.

In support of this, BSO/ORIGIN has been actively seeking and investigating possible foreign acquisitions. This policy has proved relatively successful for the company and it will continue to show interest in companies that can expand or enhance its range of products and services.

(b) Conclusions

As part of its re-organisation the reporting lines within the company have been changed.

There is now only one management layer above the operating companies. The operating companies have been grouped into regions that are larger, the same or smaller than a country, and a director has been appointed for each region. These regional directors form the Management Committee together with the day-to-day management of BSO/Beheer.

This new structure means that BSO/ORIGIN now has an organisation with very short lines of communication, despite its international character and relatively large size.

The autonomy of the operating companies has been guaranteed and the change ensures direct lines of communication with the management company.

BSO/ORIGIN is very customer driven. The company has had a policy in operation over the last few years aimed at setting prices and margins that were acceptable to clients.

Furthermore, the globalisation of BSO/ORIGIN's client operations has led the company to commence operations in Brazil, Taiwan and India.

It is hoped that the measures taken in 1991 have made BSO/ORIGIN a more flexible organisation. In the short term the company hopes to achieve growth organically. The level of cost control which has now been attained should enable the organisation to achieve higher profit margins than has been the case so far.

COMPANY PROFILE

CAP Gemini Sogeti

Head Office
6 Boulevard Jean Pain
B.P. 206
38005 Grenoble Cedex
France
Tel: +33 76 44 82 01

General Management Office
Place de l'Etoile - 11 rue de Tilsitt
75017 Paris
Tel: 33 1 47 54 50 00

Chairman: Serge Kampf
Status: Public
Number of Employees: 21,400
Revenue (FYE 31-12-92): FF 11.884 billion

INPUT LIBRARY

Summary

Cap Gemini Sogeti (CGS) is the largest European independent professional services vendor with revenues of about \$1.8 billion in 1992.

The Company

CGS was founded on 1 January, 1975 through the merger of the Sogeti Group, established by Serge Kampf in Grenoble in 1967, with Cap and Gemini.

A few years ago CGS was one of perhaps twenty vendors competing for market leadership. Today it is significantly bigger than its nearest competitor in Europe. Much of CGS's growth has come through acquisition.

CGS is the leader in France and has also reached the top spot in the UK by acquiring Hoskyns; in Germany, thanks to the agreement with Daimler Benz and its services subsidiary debis Systemhaus; in the Benelux via Cap Volmac and in the Nordic countries following its alliance with Programmator.

In 1990 it adopted a policy of strengthening its position in European countries, extending its range of offerings, selling on an industry sector as well as a geographic basis and turning itself from a federation of national companies into a "real transnational corporation."

At the half-year in 1993 the company posted a loss of FF 197 million. This compares to a loss for the same period in 1992 of FF

118 million. There is no doubt that the company has felt the impact of strong competition in poor market conditions.

Financial Analysis Exhibit A

FIVE YEAR FINANCIAL SUMMARY FOR CGS (FF MILLIONS) (FYE 31-12)

YEAR	1988	1989	1990	1991	1992
Revenues	5,816	7,055	*9,172	10,028	11,884
Annual Growth	39%	21%	30%	9.3%	18.5%
Nett Profitability	6.9%	7.5%	7.1%	5.8%	0.4%
EPS (FF)	88	21	23	16	1
Average Headcount	11,438	12,974	16,489	17,971	21,675

**Note: Hoskyns revenues consolidated from 1 July 1990.*

The compound annual average growth rate in revenues achieved over the period 1986 to 1990 is 33% per annum. However much of this growth has been achieved by mergers and acquisitions rather than organic growth.

Revenues in the first half of 1993 fell to FF 5.59 billion 5.2% down when compared to the FF 5.90 billion of the first half of 1992. Operating expenses were down 4.7% and financial expenses increased by FF 62 million due to payments related to the purchase of CAP debis, Programator and Hoskyns. The 1992 figures also benefit from the capital gain of FF 154 million when the headquarters building in Paris was transferred to the parent company.

Market Analysis

Exhibit B

**Estimated Revenues by Industry Sector, Software and Services,
Europe, Cap Gemini Sogeti, 1992**

	REVENUES (\$ MILLIONS)	SHARE (%)
Industry Sectors:		
Discrete Manufacturing	490	24
Process Manufacturing	205	10
Transportation	55	3
Utilities	80	4
Telecommunications	165	8
Retail Distribution	65	3
Wholesale Distribution	70	3
Banking and Finance	240	12
Insurance	90	4
Healthcare	40	2
Education	20	1
Local Government	75	4
National Government	200	10
Business Services	110	5
Other Industries	85	4
Systems Software Products	85	4
Total Software and Services	2,075	100

Source: CGS and INPUT estimates

Exhibit C

**Estimated Revenues by Delivery Mode, Software and Services, Europe
Cap Gemini Sogeti, 1992**

DELIVERY MODE	REVENUES (\$ MILLIONS)	SHARE (%)
Systems Software Products	85	4
Application Software Products	75	4
Turnkey Systems	95	5
Professional Services	1,270	61
Systems Integration	390	19
Systems Operations	160	8
Total Software and Services	2,075	100
Total European Revenues	2,075	100

Source: CGS and INPUT estimates

**Geographic
Markets****Exhibit D****1992 Revenues (FF millions) and Staff Numbers
by Country**

	REVENUE	STAFF
USA	965	2,469
UK	1,822	3,211
Sweden	980	1,500
Norway	140	247
Finland	123	246
Denmark	83	128
Netherlands	2,245	4,264
Belgium	293	434
Debis Germany (CGS share at 49%)	1108	1831
Sesa France	3265	5726
Italy	475	931
Spain	107	283
Switzerland	76	147

Source CGS

Exhibit E

**Estimated Revenues by Country, Information Services, Europe
Cap Gemini Sogeti, 1992**

COUNTRY	REVENUES (\$ MILLIONS)	SHARE (%)
France	660	32
Germany	40	2
U.K.	345	17
Italy	90	4
Netherlands	427	21
Belgium/Lux'	54	3
Spain	20	1
Switzerland	15	1
Austria	2	<1
Sweden	186	9
Denmark	16	1
Norway	27	1
Finland	24	1
Ireland	4	<1
Eastern Europe	4	<1
Europe Balance	161	8
Total Information Services	2,075	100

Source: CGS and INPUT estimates

Operations Structure

The Directors

The Board Directors of CGS are:

- Serge Kampf, Chairman
- Pierre Celier
- Manfred Gentz
- Michel Jalabert
- Michle Kampf
- Bruno Roger
- Ernest-Antoine Seillire
- Daniel Setbon.

Management

The Group is structured to function as a "dual organisation" to meet the twin demands of geographical and business sector coverage.

At the senior level, the Chief Operating Officer Geoff Unwin reports to Chief Executive Officer. At the middle level the CGS management team run seven strategic business areas (SBA's). Each SBA covers both a region and a business sector and has two General Vice Presidents each with responsibility for one aspect. The SBA's are supported by central functions, such as Finance, Image and Communications, Quality and Innovation.

The allocation of responsibilities in the SBAs is set out below

Organisation Chart

Exhibit F

CGS MANAGEMENT TEAM

SBA	REGION	SECTOR	GROUP VP'S
1	United States	Gas Oil	Michel Berty Robert Sywolski
2	UK	Financial Services	Tony Fisher Tony Robinson
3	Nordic Countries	Utilities	Anders Skarin Christer Ugander
4	Benelux	Distribution	Chris van Breugel Bernd Brix
5	Germany	Industry	Karl Heinz Achinger
6	Ile de France	Telecoms	Alexandre Haeffner Henri Sturtz
7	French Provinces, Spain, Italy, Switzerland, Austria	Space, Railways Air Traffic Control	Alexandre Haeffner Gennaro de Stasio

Operational units.

The new organisation is built around three types of operational units:-

- The **traditional branch** under the direction of a Branch Manager, and mainly responsible for sales and production activities within a given territory.
- The MDU (or **Market Development Unit**) fully devoted to sales either of a certain aspect of the service offering or within a specific economic sector. The MDU has sales resources and capability to generate and follow up business opportunities and sign contracts. The MDU's mission may extend outside its own division to provide assistance to other operating units.
- The **Skill Centre** is tasked with delivering on contracts signed by the MDU's and branches in its own or other divisions. It is essentially a repository of expertise in one type of service (eg migration) or a particular sector (eg banking) or a specific application (eg financial accounting).
- Units are further structured into operational divisions of about 500. There is at least one division per country even when the size of the work force does not justify it, (as in the cases of Finland, Denmark, Austria and Switzerland). Each division organises itself around one -or a combination -of the three operational unit types.
- The divisions are re-grouped under strategic business areas. Each SBA has an average of 3,000 staff.

The function of the dual organisation is to enable CGS to sell and deliver the whole service range from any SBA to clients whose decision making centres are located in the territory covered by the SBA and to develop the group's world-wide market share and specific economic sectors (financial services, telecommunications etc).

**Employee
Numbers/Skills**

CGS employs about 21,400 staff. Their deployment by country is shown in Exhibit D above.

**Objectives/
Mission**

At the beginning of 1990 CGS decided to opt for an ambitious strategy aimed at positioning the group among the three or four world leaders in its profession. This was partly based on a perception of the industry as moving rapidly from "cottage industry" onto a real industrial basis.

Much thought has gone into the need to unify group companies as a pre-requisite of meeting its objectives and a management programme "Genesis" has been implemented to bring this about. In CGS a group of national companies with common objectives and values is being turned into a real trans-national organisation. They will now share the same sales approach, service offering, quality and productivity systems (PERFORM), structural model, internal processes, image, language, and vocabulary.

(PERFORM is a project management/software engineering model and system supported by computer based tools.)

The company set up a "university" housed in its own campus to ensure the creation of a management culture suitable for the trans-national task which the group has set itself.

It also recognised the need, in order to achieve primacy, to open up capital to a new shareholder. This led to the deal with Daimler Benz.

**Acquisitions/
Divestitures**
Exhibit G
CGS ACQUISITION HISTORY 1986-1993

YEAR	COMPANY ACQUIRED	
1993	Hoskyns (now 100%)	UK
1992	Volmac Programmatore	Benelux Sweden
1991	Partnership with Debis	
1990	Hoskyns(69.5%) United Research Gamma International Teleinformatica Sysdata AIC SCS	- U.K. - U.S. - U.S. - Italy - Italy - Italy - Germany
1989	Accept Data Compact Data Systems Apsis Aptor	- Sweden - U.S. - France - France
1988	Datalogic Sofcon AD&D Heikkamaki ITMI	- Sweden - Denmark - Denmark - Finland - France
1987	CISI (37%)	France
1986	IBAT GE-DA SESA (42% holding increased to 93%) The Consulting Division of CGA Computer Inc	- Germany - Italy France - U.S.

Source CGS

The CGS Position in Germany

In 1991, CGS established a partnership with Debis Systemhaus, a subsidiary of Daimler-Benz, which took a FF2.4 billion 34% stake in Sogeti, with an option to take a controlling interest in 1995.

The first result was a German joint venture with a 51% holding for Debis Systemhaus and 49% for the German subsidiary of CGS.

Debis Systemhaus was established in 1990 as a spin off from Daimler-Benz to provide IT services to the group. A subsidiary of Debis (Daimler-Benz Interservices) it is one of five companies running important non-core businesses. (A sister company offers vehicle leasing.)

Debis Systemhaus

Debis Systemhaus works in five business areas:

- **Computer/Communication Services** (1,200 staff)
 - 50 regional DP centres primarily for Daimler Benz group
 - Germany's largest computer network
 - Computer centre back-up services
 - Systems integration
 - Hardware services
- **Business Systems and Projects** (1,000 staff)
Custom and standard solutions for:
 - Finance/lease sector
 - Personnel and financial systems
 - Sales consulting, fleet planning and spare part disposition
 - Tax consultants and accountants
 - Garages and sales companies
 - Logistics, distribution and transportation companies
- **Industrial Systems and Projects** (800 staff)
 - Strategic IT consulting
 - Engineering and CAD systems
 - Other manufacturing and support systems
 - Value-added networks
- **GEI Systemhaus** (800 staff)
 - Long established professional services group. Software tools with specialisms including IT security.
 - Best known for handling very large projects for:
Manufacturing automation
Telecommunications, Airports and Government
- **Training and Consulting** (180 staff)

Debis has acquired the Diebold Group (IT skills training), Orga-Soft (logistics) and Systemhaus Curadata (tax accountant software).

Debis also strengthens the CGS position in Systems Operations, extending its market leadership in the U.K. into Germany and bringing economies of scale and greater credibility to the new facilities management venture formed in France between Hoskyns and Cap Sesa.

In the manufacturing sector, Debis - through its parentage - brings an exceptional centre of excellence to CGS.

Summary

All of CGS' acquisitions are consistent with a strategy of providing a complete range of strategic services in all the country markets of Europe.

Key Offerings

CGS is active in four complementary businesses: consulting, project services, systems integration and facilities management.

Historically CGS has concentrated on marketing professional services, typically custom system development. It does not see itself as in the product business, either software or hardware, even though software products are sometimes acquired as part of CGS' acquisition of professional services groups.

CGS's focus is moving from professional services into systems integration and systems operations. A key factor in the Hoskyns' acquisition is its leadership position in the UK systems operations market. CGS will try to use its expertise to develop systems operations presence elsewhere in Europe.

CGS service offering portfolio:

Consulting

- *Strategic consulting
- Organisational consulting
- Information technology consulting
- Application consulting

- * mainly through Gemini Consulting

Project Services

- Systems integration
- Software development
- Migration
- Professional Services

Information Systems Management

Centralised computing service
Distributed services
Applications management
Network services
Hardware and system maintenance

Education and Training

Management education
End-user training
Professional skills training
Technical training

**Software Products Methodologies
/Tools and Standard Applications.****Marketing
and Sales**

The assignment of territorial responsibility to the SBA's is intended to facilitate group wide sales action within a given sector, encourage the transfer of skills, promote the use of know-how, provide easier access to references, encourage and implement concerted action directly aimed at increasing multi-national "targets".

Some Clients

IKEA has contracted CGS to design and develop an invoice management system for use in its German, Austrian, French, Italian and Swiss subsidiaries.

Akzo (of the Netherlands) has selected CGS as preferred world-wide implementor of SAP software package.

Electricite de France is using CGS as prime contractor for a project in connection with world's largest remote-controlled electricity production/distribution system.

Columbus Space Module: development in Norway of advanced test systems.

FFV Aerotech, Sweden: outsourcing contract

Lufthansa Services and a consortium of the catering divisions of German airlines for distributed computing

Competition

CGS' major competition is seen as EDS, Andersen, CSC, and the hardware manufacturers among whom IBM is the foremost.

CGS predicts that in the long run the industry is likely to be built around a few players capable of conducting multi-national, multi-disciplinary and multi-sector business and a mass of small companies specialised by market niche.

Ownership

Exhibit H shows the structure of ownership

Exhibit H

CGS Ownership, May 17th 1993

ENTITY	STAKE HOLDER	HOLDING
CGS SA	Sogeti SA	62%
	Public	30.3%
	Managers	3%
	CGIP	4.7%
SOGETI	SKIP	45.1%
	CGIP	4.9%
	S Kampf	7.4%
	DAIMLER	
	BENZ	4%
	CLININVEST	
	/SUEZ/	
	GAZ et EAUX	7%
GEMINI CONSULTING	Managers	1.6%
	Public	30%
GEMINI CONSULTING	SOGETI	66%
	CGS	34%
SKIP	S Kampf	51%
	CGIP	49%

Source: CGS

**INPUT
Assessment****Technologies**

To back up its services, the group depends on three types of skills: technological command (of hardware and software), working methods (from conducting interviews to piloting large projects) and a firm knowledge of business sectors. The appearance of new technologies, the growing diversity of applications and the complexity of problems to be solved direct CGS along three main tracks:

- Extension of basic technical knowledge into such areas as artificial intelligence, "fuzzy" logic, object-oriented languages, portable operating systems (UNIX), computer vision and man-machine interfaces.
- Specialisation in systems architecture, data structuring, knowledge-based systems, software engineering tools, networks, etc.
- Concentration on economic sectors (Gas/oil, Financial services, Utilities, Distribution, Industry, Telecommunications, Space, Railways, Air traffic control) to gain supremacy in a specific type of application.

In a continually-evolving market, CGS invests more than 5% of its revenues in research and development, to enhance its know-how. Thus it aims always to have new and better technological solutions to its clients' problems. So Cap Gemini Innovation stays abreast of the new ideas emerging from research centres all over the world, and validates them through participation in national and international research programs. Once mastered, the technology can be transferred to the group to service its clients.

Company Direction

CGS has been in large project contracting for some time, notably for France Telecom, but it was only towards the end of the 1980's that it saw the potential of this line of business. So it is now trying to switch away from its branch-oriented, body-shopping mentality and to develop its large project capability.

CGS sees that this requires:

- Detailed grasp of sector-by-sector business needs
- Pan-European capability to serve pan-European clients
- Business consulting expertise to supplement its technical strength.

CGS' goal is to become one of the leading vendors of software and services world-wide, with a major presence in every geographic market, and with a full range of services to offer.

In 1988, with the acquisition of Sesa, CGS added systems integration to its range of services and in 1990, CGS entered the market for management consulting and systems operations.

Gemini Consulting

As companies increasingly seek to use IS to achieve business transformation rather than merely to automate current systems, the role software and services vendors has changed. Technical skills and body-shopping no longer suffice. Consulting skills and industry knowledge are needed.

In response to this demand, in 1990 Sogeti created a new group, structurally and professionally independent of CGS. Gemini Consulting is a global management consulting company that works with large, complex companies to help them achieve business transformation.

CGS recognised that three key disciplines were critical: strategy, value chain management, and information technology and so Gemini Consulting was formed from three consultancies with the following skills:

- MAC Group - strategy
- United Research - change management
- Gamma International -organisation and information systems.

Gemini Consulting has complementary skills in the areas of strategy formulation and implementation, shareholder value creation, change management, business process improvement, organisation effectiveness, information systems strategy and the design and implementation of automated systems and applications.

Gemini's team also brings experience and expertise in all functional areas of business, including marketing and sales, organisational design and diagnosis, cost analysis and profit improvement, product development, engineering, manufacturing operations, customer service, logistics, finance, human resource development and information technology.

Gemini Consulting has a professional staff of more than 1,000, and 1992 revenues of \$370 million.

It has offices on three continents: in North America (Cambridge, Massachusetts; Chicago; Morristown, New Jersey; and San Francisco), in Europe (Barcelona, Lisbon, London, Madrid, Milan, Munich, Paris and Rome), and in Asia (Tokyo). The plan is to use the resources of Sogeti to expand in other geographic areas. This geographic scope allows Gemini to serve its clients in the key arenas in which they operate.

Gemini's Executive Committee, which reflects this international dimension, is composed of:

- David Teiger (Chairman)
- James N Kelly
- Daniel Valentino
- Serge Kampf
- Michel Jalabert

Geographic Coverage

CGS also believes that systems integration is going to become an increasingly pan-European, if not global, activity, and that a strong presence in each country market is essential to cater for the needs of the multinationals. Accordingly the company has recently developed its presence in the United Kingdom, Germany, and Italy, and considers it has now reached critical mass in each of:

- France
- Germany
- UK
- Italy
- Netherlands
- Sweden

CGS recognises the importance of targeting vertical sectors, and so each country unit has specific responsibility for one or more industries.

Only 8% of 1992 total revenue came from U.S. operations (11% in 1991). U.S. revenue declined 16% on the 1991 figures. So the question remains: how can Sogeti and Daimler-Benz use their European power base to reach their declared goal of being a leading world player in the software/services market.

Further partners will undoubtedly be brought into the group to build a global professional information services company. With some 50% of the world market in the U.S.A. and a further 12% in

Japan, the enlarged Sogeti group must now build on its European stronghold with some established leaders in these countries.

Some of Sogeti's competitors suggest that the unique management culture which has created CGS may not stretch to a global operation. However the tried and tested formula - adding leading national companies to the group, but encouraging them to retain their cultural freedom within a sound financial framework - shows little sign of running out of steam just yet.

Partnerships and Alliances

Access to market-leading products within each industry sector is crucial in serving the systems integration market. However product ownership is not necessary or desirable. Flexible access to leading products can be achieved by partnerships and in-house knowledge.

CGS has not sought to be in the product business, either software or hardware; but it has all the alliances (eg with SAP) in place to enable it to deliver the best and most suitable products in its solutions. It can be expected to continue to maintain its independence from product vendors.

Its partnership with Debis in Germany has significantly expanded its presence in both Germany and the discrete manufacturing sector.

Other co-operative agreements include:

- an agreement to work with IBM on software products for the banking sector
- a joint venture with IBM in France for large-scale systems integration projects
- a joint venture with Bull for EDI.

Strengths and Weaknesses

The company's main strength is a strong pan-European presence compared to most software/services vendors.

Its main weakness has been its lack of business consulting capability compared to companies such as Andersen Consulting. The key challenge is to derive the benefits from Gemini Consulting in acquiring credibility with senior executives and access to systems integration projects.

The main challenges for CGS over the next few years are:

- To establish the position of Gemini Consulting as a leading consulting organisation.
- To develop further links between Gemini Consulting and CGS' systems integration activities.
- To continue to expand the company's global presence, particularly in the US and Japan.

The need to change the emphasis of the company from technology implementation to business transformation is seen in the following comments about Hoskyns.

"Hoskyns has changed. It is strengthening its consultancy and implementation skills in all its major business sectors: industry, distribution and retailing, finance, government and services. It is continuing to refurbish its technology skills: CASE tools, fourth generation languages, etc. But most importantly, Hoskyns is continuing to hone its ability to manage change in information technology on behalf of its customers so that they can gain significant business benefits."

CGS is also keen to develop its presence in systems operations across Europe taking advantage of Hoskyns experience in this sector. This indicates another challenge for CGS: its ability to share and transfer expertise between organisations with widely different heritages and experiences to achieve a degree of synergy across all its operations.

CGS needs to continue to develop its industry-specific expertise and its access to leading application software products. The company's strategy of partnership rather than ownership has the advantages of increased flexibility and wider customer choice. However it is important that CGS maintains a level of detailed knowledge concerning the leading products so that the company remains a credible implementor of solutions based around them.

Conclusions

Along with IBM and Andersen Consulting, CGS looks certain to remain one of the major players in the Western European systems integration market. The company has established a lead over the other European professional services vendors in both the scale and the geographic scope of its operations. The company believes that these will give it a competitive advantage, as vendors to multi-

national corporations planning big pan-European projects, over such hardware companies as IBM and Digital.

CGS has taken the lead in developing a business consulting organisation to provide entry into major companies seeking to re-engineer their business processes. If, as expected, business process re-engineering - rather than application development- becomes the driving force behind the SI market, then CGS will have an advantage over most of its rivals with the possible exception of Andersen Consulting.

While doubts have been expressed by CGS' competitors concerning its fragmented organisational structure and the company's ability to handle large projects, the company is putting considerable effort into team-building across its senior managers and has clearly demonstrated its ability to handle large systems integration projects in France.

Strategic Assessment - CGS

CGS has achieved leadership in professional services in the European market through acquisitions backed by a policy of strong local branches controlled by tight financial reporting.

Today CGS is facing a number of key issues. Slowing growth in demand for professional services challenges its position. The investment associated with systems integration and outsourcing increase the need for access to wider sources of capital and challenge the modular nature of the branch structure.

INPUT expects CGS to continue with its aggressive acquisition policy but to temper it by a greater willingness to share control with national companies. INPUT also expects CGS to make significant inroads into outsourcing.

These activities and CGS's branch organisation structure are likely to limit CGS's ability to tackle major systems integration projects outside of its key French government utility market sectors. Its historical reluctance to own software products will also tend to limit its ability to develop market niches related to application requirements.

COMPANY PROFILE

CISI

Tour Winterthur
Cedex 18
92085 Paris-La-Defense
France
Tel: 33 1 49 03 95 00
Fax: 33 1 49 03 95 95

CEO: Alain Vidart
Status: CEA and CGS subsidiary
Number of Employees: 3,481
Revenue (FYE 31-12-92): FF 1.53 billion

The Company

CISI was founded in 1972 by CEA, the French Atomic Energy Authority. In 1987, Cap Gemini Sogeti (CGS) acquired an interest in the group. CEA owns 64% and CGS 36%. CISI operates in the following markets:

- Space/aeronautics
- Telecommunications
- Defence
- Government Agencies
- Industry
- Banking and Insurance.

CISI has four main areas of activity:

- Scientific and Technical Software
- Software Development and Conversion
- Facilities Management and Network Engineering
- Packaged Software.

**Financial
Information**

Exhibit A

CISI FIVE-YEAR FINANCIAL SUMMARY (FYE 31-12) (FF MILLIONS)

YEAR	1988	1989	1990	1991	1992
Revenues	1,108.0	1,150.0	1,382.0	1,475.0	1,528.0
Annual Growth Rate(%)	-6.0	3.8	20.2	6.7	3.5
Net Profit (FFM)	33.94	56.7	67.0	12.0	(-70.1)
Net Profit (%)	3.1	4.9	4.8	8.0	(-22.0)

Source CISI

Market Analysis**Exhibit B****1992 MARKET ANALYSIS BY CISI REPORTED ACTIVITY (FF MILLIONS)**

ACTIVITY	1992	
	REVENUE	SHARE
Scientific and technical computing	520	34%
Management information systems	611	40%
Standard Software Solutions	397	26%
TOTAL	1,528	100%

*Source: CISI***Exhibit C****1992 MARKET ANALYSIS BY INPUT DELIVERY MODE (\$ MILLIONS)**

DELIVERY MODE	REVENUE*	PERCENT
Application Software Products	15	6
Turnkey Systems	50	21
Professional Services	110	46
Systems Operations	45	19
Network Services	10	4
Total Software and Services	230	96
Equipment Services	10	4
Total Information Services	240	100

**INPUT estimate of Software and Service revenues. Percents may not add to 100 due to rounding*

Exhibit C

1992 MARKET ANALYSIS BY INDUSTRY SECTOR (\$ MILLIONS)

INDUSTRY SECTOR	REVENUES*	PERCENT
Discrete Manufacturing	55	24
Process Manufacturing	35	15
Utilities	10	4
Telecommunications	25	11
Banking and Finance	20	9
Insurance	5	2
Healthcare	10	4
Local Government	25	11
National Government	45	20
Total Software and Services	230	100

*INPUT estimate of Software and Service revenues

Geographic Analysis

Exhibit D

1991 and 1992 CISI MARKET ANALYSIS BY GEOGRAPHIC AREA
(FF MILLIONS)

GEOGRAPHIC AREA	1991		1992	
	REVENUE	SHARE	REVENUE	SHARE
France	915	62%	978	64%
Rest of Europe	560	38%	550	36%
TOTAL	1,475	100%	1,528	100%

Source: CISI

Exhibit E

1992 MARKET ANALYSIS BY COUNTRY (\$ MILLIONS)

COUNTRY	REVENUES*	PERCENT
France	153	64
Spain	70	29
Europe Balance	17	7
Total Information Services	240	100

*INPUT estimate of Software & Services revenues.

**Operations
Structure****Subsidiaries**

CISI has a number of subsidiaries, which are listed in Exhibit F.

Exhibit F

SUBSIDIARIES AND PARTICIPATIONS

COMPANY	COUNTRY	% OWNED
CISI Ingénierie	France	100
RSCI	France	99.8
CISI AID	Italy	100
SCYT*	Spain	100
CISI Télématique	France	100
RISL	U.K.	95
CISI Transtec	France	100
CCS	Spain	82.3
SCOD SA	France	70
CAM Munich	Germany	60
Groupe CAM	Germany	60

Source CISI

The above company figures are consolidated in CISI accounts.

**SCYT subsequently closed because of poor market in Spain for scientific applications.*

In addition CISI has interests directly or indirectly in some 20 companies in Europe.

For the specialisations of the main companies, see below under Key Offerings:

Organisation

Exhibit G

CISI SUPERVISORY BOARD

Alain Vidart	Managing Director
Christian Bret	General Manager
Gerard Fraissenon	Finance Director
J-H Lorenzi	(CEA)
Pierre Chavy	(CEA)
JF Dubourg	(CGS)
M Jalabert	(CGS)
D Piet	(CEA)

Exhibit H

CISI KEY EXECUTIVES

Alain Vidart	Managing Director
Christian Bret	General Manager
Gerard Fraissenon	Finance Director
José Antonio Diaz Salanova	Managing Director CCS
Jean-Marie Frély	Human Resources Director
Jack Hoeckel	Managing Director, CISI Transtec
Nicole Lacour Huwel	Communications Director
Claude Moireau	Managing Director, CISI Télématique
Emile Szarzynski	Managing Director, CISI Ingénierie

Employee Numbers

Exhibit I

FOUR-YEAR HEADCOUNT

YEAR	1989	1990	1991	1992
Employees at Year End	2,619	3,045	3,285	3,481

Source CISI

Staff numbers for 1992 were distributed:

- Paris Region 34%
- Elsewhere in France 29%
- Rest of Europe 37%

Company Direction

CISI is particularly affected by the decline in the defence market and although aeronautics and space stood up well in 1992, a number of major projects have been mothballed or canceled and as a result, the company does not regard these markets as promising. However, air traffic control may offer growth.

Having local companies in Germany and Italy offers CISI a broader possibility of servicing demands from defence departments.

However, the Spanish market for scientific computing is so depressed that in 1992 it decided to close the subsidiary SCYT.

CISI offers Facilities Management, particularly on IBM and BULL equipment, but is also moving into the area of AS400 and its link with MEGACON gives it access to the market of major public sector purchasers. FM is generally a growth area for the company.

The 1992 results were affected by restructuring charges.

1992 Acquisitions/ Divestitures

CISI Ingénierie bought RSCI, a company offering IT services, scientific and technical, mainly to the air traffic control sector.

CCS in Spain took a controlling interest at the end of the year in SCOD SA, which markets standard accounting software.

CCS bought a 40% share in the Dutch company DIGIS with the possibility of a majority interest acquired in 1993.

Key Offerings

CISI has four main areas of activity.

Scientific and Technical Software:

CISI Ingénierie (sales of FF 530m and 1,117 employees) claims to be the market leader in the nuclear and aerospace industries, sectors that require high simulation-modeling and real-time system skills. It has expertise in:

- Real-time systems
- Scientific computing

- Artificial Intelligence
- Software Engineering.

CISI Ingénierie operates outside of France through its subsidiaries; CAM in Germany, and CISI AID in Italy.

Software Development and Conversion:

CISI Transtec (sales of FF 205 million and 404 employees) specialises in the development of management software. RISL, in the U.K., specialises in applications for the insurance industry.

Both companies offer the following services:

- Software development
- Technical upgrading
- Software conversions.

Most recently CISI Transtec has moved into the software maintenance market.

Facilities Management and Network Engineering:

CISI Telematique (sales of FF 342 m and 706 employees) manages and operates data processing centres and associated networks. It offers these services:

- Operations management
- Security services
- Network design
- Consultancy & technical support
- Network engineering.

Packaged Software

Headquartered in Barcelona, Centro de Calculo de Sabadell (CCS) (sales of FF 396 m and 1076 employees) is responsible for the solutions business of the CISI group, offering these services:

- Turnkey systems
- Horizontal and vertical applications.

These services are offered outside of Spain through the company's subsidiaries; CECS in Portugal and McKeown in Ireland and the U.K.

INPUT Assessment

CISI's ambition is to return to expansion in Europe. The company currently has subsidiaries in Germany, Spain, the U.K., Italy, Portugal and Ireland. In 1991, 38% of revenue was achieved outside of France, but by 1992 this had reduced to 36%.

In France, CISI had a mixed year. There was satisfactory growth of aerospace activities, significant growth in networks, facilities management and development, yet a very difficult year for defence activities.

Overall, turnover in 1992 reached FF 1.5 billion, an increase of 3.5% over 1991. A net loss of FF 70 million was recorded.

Despite its decrease in profitability, CISI is determined to pursue its research and development efforts, to invest in software tools to maintain its skills base and to continue with its external growth.

CISI sees these decisions as essential if the company is to meet market demands long term.

(b) Conclusions

In 1993, CISI's priority is to return to the level of profitability achieved in previous years, while continuing growth in Europe.

This will be a challenge to the company in a year where recessionary pressures have not lifted and spending remains cautious. However, the company does have an established presence in Europe, and has strategically acquired companies that appear to fit well with its four main subsidiaries.

Certainly, CISI has a good base to grow from and has succeeded so far in achieving a substantial amount of revenue from outside its national market.

COMPANY PROFILE

CMG (COMPUTER MANAGEMENT GROUP) LTD

Registered Office
Carrier House
1-9 Warwick Row
London SW1E 5ER
United Kingdom
Tel: 44 71 630 7833
Fax: 44 71 630 6677

Chairman and Chief Executive: Douglas Gorman

Status: Private

Number of Employees: 1,637

Revenue (FYE 31-12-92) £116.2 million

The Company

CMG was founded in 1964 by Mr. Douglas Gorman. Since its foundation it has become one of the largest independent providers of management and technical consultancy, processing services, software development and business systems in Europe.

CMG now claims to be the largest privately-owned independent company of its kind in Europe, and has announced its intention to see a listing on the London Stock Exchange in late 1994 or early 1995.

CMG specialises in specific business areas including government, local authorities, public utilities, insurance, banking, building societies, manufacturing, distribution and retail, oil/petrochemicals and charities.

Organisational Structure

The company has currently 1,789 shareholders who are mainly group employees. The largest shareholder is Mr Gorman, the founder, who owns 15.4% of the company. Exhibit A lists CMG's key executives.

KEY EXECUTIVES

Name	Position
Ron J. White	GM/Chairman, U.K.
Sander C. Waalboer	GM/Chairman, Germany
Tom Rusting	GM/Chairman, The Netherlands
Chris Banks	Group Finance Director

At the end of 1992 CMG restructured its U.K. operations with divisions to serve vertical markets, e.g., finance, utilities and oil/gas. Exhibits A and B list direct and indirect subsidiaries. CMG holds 100% of the issued share capital of all of its subsidiaries.

Exhibit A

DIRECT SUBSIDIARIES

COMPANY	COUNTRY	PERCENT
CMG Computer Management Group (U.K.) Ltd	U.K.	100%
CMG International Ltd	U.K.	100%
CMG (Computer Management Group) BV	Netherlands	100%

Exhibit B

INDIRECT SUBSIDIARIES

Companies: Germany	
CMG Deutschland GmbH	
CMG Frankfurt GmbH	
CMG München GmbH	
CMG Consult GmbH	CMG Kernel GmbH
The Netherlands:	
CMG Nederland BV	
CMG Amsterdam BV	
CMG Bedrijfsinformatiesystemen BV	
CMG Computercentrum BV	
CMG Den Haag BV	
CMG Den Haag 2 BV	
CMG Den Haag 3 BV	
CMG Finance BV	
CMG Finance 2 BV	
CMG Informatietechniek BV	
CMG Informatieverwerking BV	
CMG Management Consultancy BV	
CMG Noord-Nederland BV	
CMG Nutsbedrijven BV	
CMG Personeelssystemen BV	
CMG Rotterdam BV	
CMG Utrecht BV	

Recent Projects

Examples of recent contracts won by CMG are as follows:

- A full outsourcing contract to handle administration systems, including marketing, promotion, subscriptions for Netherlands publishers Wolters Kluwer. Value £14 million over 6 years.
- The first client contracts for a new service - IS2000 - aimed at the insurance market and developed in collaboration with Dominion Insurance.
- A Facilities Management contract for BP Petroleum, worth £25 million over the next five years. CMG will assume responsibility for all aspects of BP's share registration system.
- Design and implementation of a share register system for Abbey National (U.K.).
- Full management of the Grand Metropolitan share register.
- IT processing of Guinness share register.
- Development of a new customer invoicing and debt collection system in partnership with two Dutch water boards - the Amstel and Gooiland Water Board and the Limburg Water Authority.
- A contract initially worth £240,000 to provide strategic advice on Chevron U.K. Ltd's Multi Field Integration project.
- Installation of a "back office" software package for Sun Life Unit Services (U.K.) throughout its branch network and linked to its head office.
- A 2,400-employee payroll processing contract from Bradford & Ilkley Community College. The contract is valued at £100,000 over the next year or years.
- A payroll processing contract for KLM, the Royal Dutch airline, in an overall investment by the airline valued in excess of £1 million.
- The first stage of a five-year £1 million IT upgrade for The Chartered Institute of Management Accountants (U.K.). INFOBASE will form the basis of the System Specification.
- A three-year contract with Esso Petroleum to outsource its over night centralised mainframe

- printing at the CMG Print Centre at Feltham (U.K.).
- Installation of new payroll processing and management reporting system for travel retailer Lunn Poly Ltd (U.K.). The contract is worth approximately £250,000 in installation and processing revenue over the next five years.
- Payroll processing contract from Manchester Polytechnic (U.K.). The service will be based on the PAYFACT 2000 system and is valued at £100,000 over three years.

Recent Acquisitions

- During 1989, CMG acquired Mayne Nickless Computer Services Ltd., an organisation providing payroll services in the North of England.
- In February 1990, DORA Computer Services BV in the Netherlands was acquired. The company supplies computerised payroll services together with customer-specified computer software developments for payroll in the Netherlands.
- In March 1990, CMG acquired Quadata BV, another computer services organisation providing payroll and facilities management services in the Netherlands.
- In May 1990, Sysco GmbH and its subsidiary Sysber GmbH were acquired. The companies provide computer consultancy services in the banking and finance sectors.
- In January 1992 CMG formed CMG Munchen GmbH, making it the company's fourth office in Germany. The company will target the industrial and financial sectors.
- In August 1992 CMG acquired German IT consultancy Kernel GmbH, which forecast revenues for 1992 of some DM3 million.

Key Products and Services

CMG has six principal areas of activity:

- Professional Services
- Software Products
- Processing Services
- Network Services
- Systems Operation
- Systems Integration

Professional Services

CMG provides consultants for all phases of the project life cycle from management consultancy through to systems design and development. The company has developed its own development methodologies which are:

- **COMMANDER** - an integrated project support environment.
- **ARCHIPEL** - a framework within which strategic business, organisation, information and automation planning can be undertaken.
- **PLOT** - a methodology to assist manufacturing companies to introduce new technology.
- **OFFICER** - used in the implementation of office systems.
- **SQM** - strategy for quality manager.
- **SMS** - strategy for Management Services.

Software Products

These include:

- **PAYFACT 2000** - a personnel and payroll package which CMG installed in its Dutch and U.K. processing centres.
- **FACT 2000** - a financial accounting package.
- **SHARE REGISTRATION** - a service to administer all aspects of the share registration business.
- **IMACS** - a London market underwriting and accounting package.
- **Bank of England Reporting Suite** for Strategy reporting by banks to the Bank of England.
- **INFOBASE** - information management for charities, associations and membership institutions.

CMG also provides customised solutions. Software packages are often used as base products and are tailored to individual client needs.

Industry Knowledge:

CMG targets specific industry sectors, notably:

- **Finance.** CMG's specialist businesses operate in all the major financial centres of the U.K., the Netherlands and Germany. They cover all aspects of banking, insurance, securities and building societies.
- **Public Sector.** Targeted clients are national and local government, schools, social security, health care and liabilities. CMG is a leading supplier of Geographic Information Systems, particularly in the Netherlands.
- **Manufacturing, Retail and Distribution.** The company's expertise includes advanced manufacturing aids, warehousing, transportation and freight forwarding.
- **Associations and Charities.** In the U.K. CMG provides packaged systems and consultancy to many of the country's professional and charitable organisations.

Financial Information

Exhibit D

FIVE-YEAR FINANCIAL SUMMARY (FYE 31-12) (£ MILLIONS)

YEAR	1988	1989	1990	1991	1992
Revenues	64.6	85.6	96.2	102.9	116.2
Annual Growth Rate (%)	14%	32%	12%	7%	13%
Profits before Taxes	5.0	8.6	8.6	9.1	9.5
Annual Growth Rate (%)	(11%)	72%	0%	6%	4%
Profit after Taxes	3.1	5.1	5.1	5.6	5.9
Annual Growth Rate (%)	(6%)	65%	0%	10%	5%
% Net Profit	4.8%	6.0%	5.3%	5.4%	5.1%
Earnings per Share	23.6p	38.8p	37.0p	39.8p	41.3p

Note: Numbers are rounded

Market Analysis**Exhibit E****1992 MARKET ANALYSIS BY DELIVERY MODE**

DELIVERY MODE	REVENUE (\$MILLIONS)	PERCENT
Application Software Products	6	3
Professional Services	86	47
Systems Integration	6	3
Systems Operations	17	9
Network Services	7	4
Processing Services	21	11
Total Software and Services	143	78
Other Revenues	40	22
TOTAL EUROPEAN REVENUES	183	100

* INPUT estimates

Note: Numbers are rounded

Exhibit F**1992 MARKET ANALYSIS BY COUNTRY**

COUNTRY	REVENUE (\$ MILLIONS)	PERCENT
Germany	10	7
U.K.	45	31
Netherlands	86	60
TOTAL SOFTWARE AND SERVICES	143	100

Note: Numbers are rounded

Exhibit G

1992 MARKET ANALYSIS BY INDUSTRY SECTOR

INDUSTRY SECTOR	REVENUES (\$ MILLIONS)	PERCENT
Discrete Manufacturing	13	9
Process Manufacturing	15	10
Transportation	4	3
Utilities	12	8
Retail Distribution	4	3
Wholesale Distribution	3	2
Banking and Finance	32	22
Insurance	4	3
Health care	4	3
Local Government	22	15
National Government	22	15
Other Industries	10	7
TOTAL SOFTWARE AND SERVICES	143	100

Note: Numbers are rounded

Processing Services

CMG has several processing centres in the Netherlands and the U.K. The main activities are payroll processing services. Payroll is an area CMG has concentrated on over many years. Its bureau based and in-house systems have given CMG a significant share of the European market.

CMG offers Value Added Network Services (VANS) which include:

- **ORDERLINE** - a service designed specifically for importers, suppliers and manufacturers who sell their services through a dealer network. This network gives the opportunity to order directly from a supplier via CMG.
- **CARLINE** - designed for car dealers to order their stock.
- **CMG** also operates, on behalf of Telekurs, an information service providing stock exchange information to clients in The Netherlands.
- **Kluwitel** - a news service available to Wolters Kluwer publishers.
- **Citibank/Diners Club** - a clearing system for Diners Club agents.
- **CMG** handles the yellow pages/home shopping network.

Systems Operation and Systems Integration

CMG offers the option to manage clients' payroll and general processing systems in-house.

CMG provides a full range of services to facility manage the clients' total system or the software alone.

In 1991 CMG won a number of systems operation contracts, most notably from BP Petroleum, worth £25 million over a five year period.

Company Strategies

Company Direction

CMG's Objectives are as follows:

- To continue to be an expanding European international Organisation.
- To be in the business of providing high-quality professional and processing services to large and medium-sized businesses, government and public utilities.
- To build on its portfolio of offerings - which it sees as unique among independent specialist vendors - particularly emphasising management consultancy.
- To be major players throughout Europe in Facilities Management Services.
- To become major players in the U.K. Share Registration market.
- To remain a quality organisation in every respect.
- To specialise in major market sectors and be able to provide a full I.T. service to these markets, from strategy planning to software delivery including package selection, bespoke software development, project management and systems integration.
- To retain fundamental policies of equal opportunities, fairness, openness, maximum communication and business ethics.

Strengths and Weaknesses

CMG's main strength lies in its presence as an established vendor in its main areas of activity. The company is also strong in its

knowledge of and expertise in the industry sectors in which it operates.

CMG has a strong reputation as a quality vendor and this is undoubtedly a major strength in a market where quality is highly valued. CMG has enhanced its reputation by receiving BS 5750/ISO 9001, the international certificate of quality assurance.

CMG's main weakness is its lack of European presence outside the U.K., Netherlands and Germany. However, the company now appears to be addressing this, and is actively seeking a stock market listing to support its European expansion strategy.

CMG plans to acquire organisations complementary to its existing businesses. CMG feels that the company has reached a point in its development where significant growth, particularly in other countries, would be better achieved with the financial credibility and access to funds that is inherent in obtaining a listing on the London Stock Exchange. The company hopes to have a full listing by 1996.

Conclusions

CMG is a well established vendor in the U.K. and a market leader in the payroll and financial services markets. It has a growing presence in Germany. In the Netherlands, where 60% of its revenue arises, it is a leading supplier of payroll services and one of the best known consultants.

The company realises that in the long term, to compete successfully with the growing number of pan-european vendors, it will need to expand outside of its current markets. It has therefore announced its intention to seek a stock market quote.

CMG has always prided itself on being a private company with almost 100% of its equity owned by employees. CMG claims that its employees have added motivation to produce top-class work, resulting in a better quality of service to its clients.

The challenge for CMG as a public company will be to retain the cultural components of its structure as a private company, which have made it so successful, and yet open its management culture to successfully integrate foreign acquisitions.

COMPANY PROFILE

COMPUTER SCIENCES CORPORATION

2100 East Grand Avenue
El Segundo, CA 90245
U.S.A.
Tel: +1 (213) 615-0311

Chairman & CEO: William R. Hoover,
Status: Public Corporation
Total Employees (FYE 31/3/93): 27,000
Total Revenue (FYE 31/3/93): \$2.5 billion

European CEO: Ron W Mackintosh
European Revenues: (FYE 31/3/93)
\$235m

European HQ
CSC Computer Sciences Ltd
CSC Europe
279 Farnborough Road,
Farnborough, Hants, GU14 7LS
United Kingdom
Tel: +44 (252) 363000
Fax: +44 (252) 370222

INPUT LIBRARY

The Company

Computer Sciences Corporation (CSC), founded in 1959, is the largest independent professional IT services company in the U.S.A. It supports government and commercial clients.

CSC's objective is to become one of the top two or three companies in the commercial markets for professional services, systems integration, and outsourcing in the U.S.A. and Europe.

It aims to maintain its dominant position in the U.S. federal market, and expand its share in non-federal markets through internal growth and acquisitions.

In Europe, CSC employs 1,800 personnel.

Financial Information

Exhibit A provides CSC's five-year financial summary.

Overall revenue increase for 92/93 was 17% (22% in 91/92.) Revenues from commercial activities increased 36%. The major source of this growth is the U.S. Commercial revenues have grown 113% since 1991.

Exhibit A

**COMPUTER SCIENCES CORPORATION
FIVE-YEAR FINANCIAL SUMMARY
(FYE 31/3) (\$ MILLIONS)**

YEAR	1989	1990	1991	1992	1993
Revenues	1,304.4	1,500.4	1,737.8	2,113	2,479.8
Annual Growth Rate	13%	15%	16%	22%	17%
Profit after tax	52.5	65.5	65.0	68.2	78.1
Annual Growth Rate	21%	25%	(1%)	5%	15%
Earnings per share (\$)	3.28	4.07	4.02	4.12	4.66
Annual Growth Rate	20%	24%	(1%)	2%	13%

Source CSC

**Market
Information**

Exhibit B provides summary of source of revenue by Line of Business. The 1993 increase from federal sources was only \$0.04 billion or 3% (13% in 91/92.)

Most revenue growth was generated internally, and 54% of all growth came from the General Dynamics outsourcing contract.

Exhibit B

**CSC 1992/3 Sources of Revenue
by Line of Business
(\$ MILLIONS)**

LINE OF BUSINESS	SHARE	REVENUE
Consulting, inc Business Reengineering	37%	901
Systems Integration	25%	617
Outsourcing	38%	962
TOTAL	100%	2,480

Source CSC

Exhibit C breaks down of CSC's revenues by market.

International revenues (9% of total) increased by 13% bringing the total rise- for the last three years to around 16% - but were not profitable. Some \$15.9 million were lost in 1993 in Belgium and France where "strong management steps were taken" to phase out unprofitable business.

The UK operation is satisfactory. In the Netherlands the operation is profitable and supports fifty clients primarily in banking and industry. In Germany CSC is concentrating on defence, retail and industry.

Exhibit C

**CSC 1992/3 Source of Revenue
by Market (\$ MILLIONS)**

MARKET	SHARE	REVENUE
Department of Defense	27%	676
NASA	11%	261
Civil Agencies	13%	318
TOTAL FEDERAL	51%	1255
Commercial USA	40%	990
Commercial International	9%	235
TOTAL COMMERCIAL	49%	1225
GRAND TOTAL	100%	2,450

Source CSC

The proportion of revenues from all commercial customers was 38% in 1991, 12% from international. The contrast with the 93 figures reflects dynamic growth in the U.S.A., and slow growth in Europe.

Exhibits D and E provide breakdowns of CSC's European revenues by country and delivery mode.

Exhibit D

**Estimated Revenues by Industry Sector, Software and Services, Europe
Computer Sciences Corp., 1992**

	REVENUES (\$ MILLIONS)	SHARE (%)
Discrete Manufacturing	20	11
Process Manufacturing	5	3
Transportation	5	3
Utilities	15	8
Retail Distribution	10	6
Wholesale Distribution	15	8
Banking and Finance	45	25
National Government	50	28
Other Industries	15	8
Total Software and Services	180	100

Source: INPUT Estimates

Exhibit F

**Estimated Revenues by Delivery Mode, Software and Services, Europe
Computer Sciences Corp., 1992**

DELIVERY MODE	REVENUES (\$ MILLIONS)	SHARE (%)
Application Software Products	5	3
Turnkey Systems	25	13
Professional Services	35	18
Systems Integration	10	5
Systems Operations	80	40
Processing Services	25	13
Total Software and Services	180	90
Equipment/Other Revenues	20	10
Total European Revenues	200	100

Source: INPUT Estimates

Exhibit F

**Estimated Revenues by Country, Information Services, Europe
Computer Sciences Corp., 1992**

COUNTRY	REVENUES (\$ MILLIONS)	SHARE (%)
France	35	19
Germany	15	8
U.K.	60	33
Netherlands	11	6
Belgium/Lux	66	37
Total Information Services	180	100

Source: INPUT Estimates

**Organisation
Structure****Operations in the United States**

In the U.S. CSC has more than 200 offices and provides its products and services through three operating groups:

- **The Systems Group:** the primary resource for computer and communications technology, with five divisions mainly serving the U.S. government.
- **The Consulting Group:** the counterpart of the Systems Group in the commercial marketplace.
- **The Industry Services Group:** serves vertical markets with outsourcing and industry-specific services, mainly in insurance, healthcare, and consumer finance.

The services provided by these groups are set out in the next paragraphs.

Systems Group Services:

Systems engineering and integration, the development of custom-designed computer-based, and communications, systems, operational support of clients' technical activities, outsourced facilities management, and turnkey system development.

The Systems Group consists of five units:

- The Integrated Systems Division
- The Systems Sciences Division.
- The Network Integration Division.

- The Systems Engineering Division
- The Applied Technology Division: CSC's largest business unit, with about 9,000 staff and \$500m in annual revenue.

Consulting Group Services:

Management consulting, requirements analysis, system design, software development, system engineering and integration, communications systems engineering, and outsourced facilities management for non-federal organisations world-wide.

The Consulting Group consists of the following units:

- CSC Index, Inc., Cambridge (MA),
- CSC Partners Inc (formerly Computer Partners, Inc.),
- Cleveland Consulting Associates, Inc.,

Industry Services Group Services:

Outsourcing and industry-specific services including IT and administration services, mainly in insurance, healthcare, and consumer finance.

The Industry Services Group consists of the following units:

- Health and Administrative Services Division
- CSC Logic, Inc.
- CSC Healthcare Systems, Inc.
- ComCare
- CSC Credit Services
- CSC TACS Division

Operations in Europe

CSC Europe provides the following services:

Consulting, software development, systems integration services and outsourcing to national and transnational clients, primarily in Belgium, France, Germany, the Netherlands, and the U.K.

Headquartered in the UK, CSC has the following business units:

- Belgian Operations Division
- French Operations Division
- German Operations Division
- Netherlands Operations Division
- U.K. Operations Division
- Services Management Division (SMD)

U.K.-based SMD is responsible for outsourcing throughout the region, unlike the operations companies which have a country focus and a brief restricted to SI and professional services.

Acquisitions

Acquisitions made by CSC are as follows:

1991

October: Completed the acquisition of Intelicom Solutions Corporation (formerly Telic Corporation.) Revenues c \$30m p.a., a major provider of software to the telecommunications industry in the U.S. Joins the CSC Consulting Group.

July: Acquired CompuSource. Revenues \$20m p.a., provides systems operations and processing services to over 300 clients, including commercial insurance and financial services firms. Joins the Health and Administrative Services Division of the CSC Industry Services Group.

May: Acquired Butler Cox, a London-based IT management consultancy. Revenues c \$18m p.a. Merged into CSC Index.

January: Acquired Paragon Consulting Group, specialists in operations management consulting services to food and consumer products manufacturers. Revenue \$1.5m in 1990. Merged into Cleveland Consulting Associates.

January: Acquired Moria Informatique, a Paris-based systems integration and software firm. Revenue of about \$38m, operates as CSC Moria.

January: Acquired Analytics Inc., specialist in information security and communications systems. Revenue \$28m p.a. Merged into Systems Engineering Division of CSC Systems Group.

1990

February: Acquired Logic, Inc., a provider of systems operations, processing, and application software to insurance companies and financial institutions. Revenue c \$17m p.a. Joins CSC's Industry Service Group.

January: Sold last 30% interest in INFONET

1989

November: Acquired Cleveland Consulting Associates Inc., providing logistics and operations management consulting services world-wide. Revenue \$13m p.a. Joins CSC Consulting.

November: Acquired LPS Inc., specialists in system development for commercial clients. Revenues c \$9m p.a.. CSC Partners unit of CSC Consulting.

November: Acquired remaining 19% interest in Inforem Ltd, a British consulting firm with clients in the financial services, retail, and leisure industries. Revenue c \$20m p.a. Merged into CSC's European operations.

June: Completed acquisition of CIG-Intersys Group the largest information services company in Belgium. Revenue c \$85m p.a. 1,000 employees. Provides consulting, systems integration, software, computer facilities management (systems operations), and related services mainly to the banking, insurance, transportation, and distribution industries. Merged into CSC's Belgian operations, now known as CSC N.V./S.A.

April: Acquired Seako Inc. Specialist in IBM-based software products for medical groups, managed healthcare organisations and private practices. Revenue c \$7m. Merged with CSC Comtec to form CSC Healthcare Systems, in Industry Services Group.

1988

October: Acquired Index Group, Inc., a leading consulting firm to major U.S. and European companies specialising in the strategic use and management of information technology. Revenue \$30m.

Strong senior commercial consulting capability added to CSC's systems integration offering.

1986

July: Acquired Computer Partners a professional services firm serving manufacturing, distribution, finance, insurance, utilities, state and local government. Revenue c \$15m p.a. Now known as CSC Partners

Recent Major Contracts

In November 1991, CSC and **General Dynamics Corporation** formed a 10-year agreement under which CSC will provide IT services to GD's aerospace and defence units, including data centre management, network operations, systems integration and other technical services. The value of the contract was announced as \$3 billion; it involved 2,300 GD staff moving to CSC; CSC paid GD c \$200 million for facilities, equipment, software and services.

In 1992 James R. Mellor, President and CEO of GD Corporation joined the CSC Board of Directors. CSC reported the GD contract as a major revenue contributor in 1993. Three operating divisions of GD had been sold off during the year but the new owners were continuing with CSC.

CSC expanded its 23-year partnership with AT&T in fiscal 1991 with a broad spectrum of new services. In the area of high-level consulting, the company is helping AT&T re-engineer the methods used to fulfil service orders for clients to improve service quality and speed of delivery, and reduce costs.

In the U.K., CSC signed an 11 year contract with **B&S**, the major UK retailer with 136 stores, worth \$200 million. CSC will run the company's data centre and develop and maintain applications.

In November '93 CSC announced the largest ever outsourcing contract in Europe, with **British Aerospace (BAe)**. Worth \$1.4 billion over ten years (£900 million) the contract is understood to have been won in competition with EDS and IBM. The final contract is due to be signed in Spring '94. The contract involves transfer of 1,250 staff.

CSC has also signed a contract with the British **Royal Air Force** to define the requirements for a modernised logistics system. The contract is worth \$23 million over two years and is the first part of a modernisation programme. CSC reports that it was won partly by reference to its experience with the USAF Logistics Command.

Key Service Capabilities

CSC claim to have developed the Index Group (acquired in 1988) as the leading innovator in business re-engineering. Much of CSC's new commercial systems integration activity is now being driven by business re-engineering. And business re-engineering has the potential to create opportunities in federal markets, which are increasingly open to radical thinking in administration.

The application of leading edge technologies is critical to its future success in both the federal and commercial markets.

CSC continues to apply new technologies in the federal sector that can be a seed-bed for opportunities commercially. For example:

CSC has developed for DOD a system to replace paper based weapons purchasing systems with sophisticated imaging and distributed data base technologies. This system is referred to as "Joint Computer Aided Acquisitions Logistic Support (JCALS)." It is now being developed as Enterprise CALS (ECALS) and sold to major clients to promote workflow management and office automation.

CSC report work in 1992/3 on networking (Universal Memory Network UMN,) computer aided training, and geographic information systems. This latter is the focus of CSC's GIS Center of Excellence.

CSC has set itself ambitious internal targets. By advancing technologies such as accelerated application development, combined with methodologies, training, and emerging tools and technologies, CSC aims to double its productivity on client engagements by 1996 and increase it by ten times by the year 2000.

Strategic Analysis**Company Direction**

CSC's positioning is summed up in the 1992/93 Annual Report: "Being the best at business re-engineering is a prerequisite to helping companies address the issue of competitiveness in a rapidly changing environment. Pre-eminence in the evaluation and application of technology is essential to leadership in systems integration and information processing outsourcing. Having the best project management skills is critical to success in the development and operation of complex information systems. So all three are required if we are to be the best at helping our clients get break-through results in the way they operate". The driving function is business re-engineering.

CSC now sees significant opportunities to transfer the concepts into the federal market place, suitably modified for "the federal government's culture and procurement approaches". CSC foresees strong demand there.

CSC report that they won 45% of all contracts for which they bid during 1993 and that the total value of contracts was \$1.1 billion. The bid ratio is down on previous years reflecting increased competition as rivals seek their share of post-cutback defence and weapons system spending.

CSC sees, in the decline of defence budgets, opportunities for information systems as a support to productivity measures. It expects civil agency spending to increase and IT to be supported by the new administration as a way of propelling economic recovery and long-term competitiveness in the U.S.

So with growth in the domestic market from non-federal sources well established, and its share of the federal market tenable, even at the cost of increased effort, what of the International market place?

Direction of CSC Europe

In the past CSC has used credibility and know-how built up in federal contracts to address U.S. commercial targets while keeping government business going. It has not been easy to effect the same sort of transfer across the Atlantic. CSC's European growth in the 1980's did not match the market growth.

The marketing strategy, based on the Index Group's strategic consulting programmes and business reengineering - reinforced by the acquisition in fiscal 1991 of Butler Cox, a leading UK consultancy - seems to be proving more successful.

The outsourcing contract signed with B&S worth \$0.2 billion was encouraging. But the deal with British Aerospace could be a landmark win. Worth \$1.4 billion, involving 1,250 staff, it is about the size of the pact with General Dynamics. The GD business is impacting on corporate revenues; so will BAe, nearly doubling the stream from Europe.

CSC also sees opportunities for outsourcing created by the style of the UK government and its enthusiasm for devolving functions from the administration to external contractors.

Strengths and Weaknesses

CSC has been very successful in its federal systems and services and professional services businesses.

It has a strong base of big long-term contracts, generally with a total value in excess of \$100m.

CSC had not played a major role in the commercial professional services market before 1987, when it announced a goal of attaining 50% of its profits from commercial business by 1992.

CSC's experience, its strong set of technical skills, and its success in federal systems integration, position it well to participate in the commercial SI market.

In addition, it has a base of commercial skills.

CSC's major weaknesses in the commercial market are its lack of commercial marketing experience and geographic sales and implementation coverage.

Conclusions

It is clear that CSC has set its sights on becoming a major player in commercial systems integration, and is making significant investments to reach this goal. It has carefully selected and acquired firms that will help it achieve this goal. INPUT believes CSC's strategy, which is built around strategic consulting provided by the Index Group and its solid federal project management skills, is sound. The Index Group provides unique commercial consulting experience as well as access to a commercial client base - both capabilities that federal integrators generally lack.

Its string of carefully selected acquisitions provide it with the bridge that is necessary to convert federal experience and skills to commercial application implementation. However, CSC may not yet realise quite how difficult this step is.

INPUT believes that CSC will continue to acquire commercial firms that expand its geographic and vertical industry coverage. On the whole, CSC's strategy seems sound.

However CSC has yet to reach a critical mass in Europe, and so further acquisitions in the major European countries are required. Accordingly it is unlikely that CSC will become a major force in the European systems integration market over the next five years.

CSC's industry coverage and application software product access may also need significant strengthening for the company to succeed in the European commercial systems integration market.

Strategic Assessment - CSC

CSC is an example of a very large successful U.S. based services vendor that has never been able to match its promise to achieve a similar position in the European market. One need look no further than its strong U.S. Federal Government orientation for an answer to this question. Indeed in Europe its business has leaned heavily on NATO and other government influenced contracts for its development.

CSC has undoubtedly got a significant depth of project management and consulting experience to bring to bear to the systems integration opportunity. It is attempting to develop its European business through an acquisition strategy and to move into U.S. commercial markets. The recent General Dynamics outsourcing deal is an example of the latter but tempered by the fact that General Dynamics itself is a major Pentagon 'oriented' company.

CSC is likely be able to use its new outsourcing contracts not only to leverage further outsourcing in Europe, but also to reinforce its position as a systems integrator. The outstanding question remains: can CSC now move quickly from being a second rank to a first rank player in Europe?

COMPANY PROFILE

DATEV eG

Paumgartnerstrasses 6-14
D-90329 Nurnberg
Germany
Tel: 49 911 276-0
Fax: 49 911 276 3196

Chairman: Heinz Sebiger
Status: Private (registered cooperative society)
Number of Employees (YE 1992) : 4,316
Revenue (FYE 31-12-92): DM 846 million

The Company

DATEV was founded in 1966. Its founders recognised that tax consultants had a need for data processing services, due to both a shortage of suitably qualified staff and to the sheer volumes of data involved. The aim of the company was to create a non-profit service organisation, which would offer its members high quality EDP services at low cost.

Today DATEV is an enormous cooperative society which maintains several information/service centres for the tax-consulting and related professions in Germany.

Members are tax-consultants, certified public accountants, attested auditors and lawyers in the Federal Republic of Germany, tax-consulting companies and auditing companies.

Members of the cooperative are offered support and advice in the consulting and servicing of client companies. Members can avail themselves of a range of EDP service programs through Datev's computer facility in Nrnberg (Nuremberg) and/or regional Information Centres.

Drawing on a base of general accounting and annual financial statement programs, DATEV has developed an information system that supports the tax-consultant in dealing with problems and data as well as in computing taxes. Depending on the field of application and the program, tax-consultants can decide whether the data should be processed at the computer centre, on a personal computer in the office or by combination of both techniques. Access to the large computing and processing capacities is ensured at all times through the company's own data network.

At the end of 1992 DATEV had 32,775 members providing, in turn, services to approx. 1,600,000 clients. DATEV's 4,316 employees are spread between company headquarters in

Nuremberg and the 26 Information Centres located throughout Germany (including the former German Democratic Republic). DATEV reported 1992 revenues of DM846.2 millions.

Financial Information

Exhibit A

FIVE YEAR FINANCIAL SUMMARY (FYE 31-12) (DM MILLIONS)

YEAR	1988	1989	1990	1991	1992
Revenue	501.7	535.5	613.2	741.4	846.2
Annual Growth rate %	11	7	15	21	14
Profit before Taxes	50.2	26.5	23.0	33.7	59.6
Annual Growth rate %	(0.6)	(47)	(13)	47	77
Profit after Taxes	17.9	7.3	7.3	10.9	21.6
Annual Growth rate %	9	(59)	-	49	98

Market Analysis

All Datev revenues are derived in Germany.

Exhibit B

Estimated Revenues by Industry Sector, Software and Services, Europe Datev, 1992

	REVENUES (\$ MILLIONS)	SHARE (%)
Industry Sectors: Business Services	260	48
Cross-Industry Sectors: Accounting	260	48
Systems Software Products	35	6
Total Software and Services	545	100

Source: INPUT estimates

Exhibit C

**Estimated Revenues by Delivery Mode, Software and Services, Europe
Datev, 1992**

DELIVERY MODE	REVENUES (\$ MILLIONS)	SHARE (%)
Systems Software Products	35	6
Application Software Products	45	8
Professional Services	75	14
Systems Operations	5	1
Processing Services	385	70
Total Software and Services	545	99
Equipment/Other Revenues	5	1
Total European Revenues	550	100

Source: INPUT estimates

**Organisational
Structure**

Exhibit D lists key executives of DATEV.

Exhibit D

KEY EXECUTIVES

NAME	POSITION
Dr. Heinz Sebiger	Chairman
Siegbert Rudolph	Deputy Chairman
Gnter Imhorst)
Rolf W. Hoss)
Karl Gstaltmeyr) other Main Board members
Jurgen Hiller)
Peter tom Suden)
Adolf von Au Committee	Chairman of Management
Werner Killian	Deputy Chairman
Peter Beck)
Rudolf Binnewies)
Josef Fuchs)
Rolf Kugelstadt)
Helga Marienfeld) other Committee members
Karlheinz Morsch)
Konrad Romer)
Johann Rosch)
Josef Striedacher)
Lydia Strobel)

Although DATEV's headquarters and main data centre are located in Nuremberg, the organisation operates largely on a regional basis, through its 26 Regional Information Centres and 7 Education Centres. These are located as shown in Exhibit D:

Exhibit E

DATEV Information and Education Centre Locations

LOCATION	INFO CENTRE	EDUC CENTRE
Aachen		-
Berlin		
Bielefeld	-	-
Braunschweig		-
Bremen		
Dortmund	-	
Dresden	-	
Dusseldorf	-	
Erfurt	-	
Essen	-	
Frankfurt/Main	-	
Freiburg	-	
Hamburg	-	
Hannover	-	
Karlsruhe	-	-
Kassel	-	
Kiel	-	
Koblenz	-	
Koln	-	
Leipzig	-	
Magdeburg		
Mannheim	-	
Munchen	-	
Munster	-	
Nurnberg		
Rostock	-	
Saarbrücken		-
Schwerin	-	
Siegen		
Stuttgart		-
Tiefenbach (Passau)	-	
Ulm	-	
Wurzburg		-

Company Activity

Although over the years since its inception DATEV has grown and diversified its services, it has nevertheless steadfastly adhered to its prime purpose of fulfilling the business needs of its members, by which, as it is a cooperative, it is owned. These members are typically:

- certified tax advisors
- tax accountants
- certified auditors
- certified bookkeepers
- attorneys
- taxation firms
- audit firms
- bookkeeping firms

"Diversification" has been, rather, in the range of services, which have grown from the original bookkeeping and accounting software it offered in its early years, to include subjects such as:

- tax planning
- end-of-period financial statement compilation
- personnel management

Through its 33,000 members DATEV claims that it serves the financial accounting needs of two-thirds of all German businesses.

Key Products and Services

DATEV divides its product/service offerings into the following main categories:

Accounting Programs**Financial Accounting (FIBU)**

This system produces accounts, journals and lists of totals and balances as well as financial statement analyses, economic analyses statistics, cost statistics, comparisons of actual v. expected and/or actual v. previous year, and pre-tax declarations.

20 different chart of accounts' variations are available. In addition, the system produces a balance sheet, including a condensed version of financial statement and profit-and-loss account, balance sheet ratios, etc.

Other program features include:

- Agricultural accounting - the processing of produce quantities as well as values.
- Balance sheet comparisons
- Property accounting
- Notes added to the balance sheet.

Available reports include:

- Statement of fixed asset movements
- Notes to the financial statements

Cost Accounting

This program is an extension of the Financial Accounting System (FIBU). By storing cost centres and additional master data, individual operational accounting, cost centre accounts, and accounting per product unit is provided.

Accounts Receivable/Accounts Payable

In this system, accounts receivable/accounts payable ledgers are maintained, reminders, remittance slips and cheques printed, and debit advice made possible. An A/R aging schedule allows quick assessment of liquidity. In addition, credit assessment is simplified through delinquency statements, which show clients' historical propensity to pay.

Payroll Accounting

DATEV's Payroll Accounting Program is neither industry- nor size-specific. This program can handle special requirements for the construction industry, for part-time employees etc.

Tax Programs

Tax computations, an essential part of a tax-consultant's work, are carried out and support provided in the task of computing reserves or alternative tax burdens. Lengthy and time-consuming computations of various alternatives can be saved, and all the latest legal provisions are automatically taken into account.

Personal Income Tax

The system computes annual income tax and church tax liability, taxable income etc., which is printed directly onto the tax return form. Additionally, it provides annexes concerning types of income and deductions.

Corporate Tax

Taxable income and tax reserves are computed, alternative distributions compared and tax forms printed.

Trade Tax

This industry-specific module processes tax returns for sole proprietorships and partnerships.

Comparison of Tax Burdens

This program allows the user to simulate different forms of ownership/organization and their effect on the overall tax burden.

Programs For Economic Advice

Comparative Business Analysis

For certain industries averages are provided to enable comparisons to be made between a company and its respective industry. By comparing a company's figures with average values of the industry, it is possible to recognise weaknesses of the company, and to provide valuable data for management decisions. Standard measures include income statements as well as various economic statistics.

Inventory Control, Sales Analyses and Statistics

This system supports the control of the flow of goods and commodities. It provides a basis for fixed-point as well as perpetual inventory and assists in preparing the balance sheet with regard to stock on hand by taking into account all necessary valuation criteria.

Business Management and Information System (BIS)

This system is tailor-made for the special needs of the retail trade. The following reports are available: short-term profit-and-loss accounts for groups of goods/divisions/branches etc.; surveys of the movement of goods; economic statistics; surveys of sales

performance by branch; limit planning and control for groups of goods and divisions; and contribution margin techniques for sales departments. Statistics of stock and sales volume show the performance against the retail trade.

Comparative Investment Financing (FINA)

FINA provides a comparison of financial methods, allowing the user to compare methods of financing: purchase; lease; lease-purchase; and hire purchase. The program calculates the effects of these financing methods on the tax burden, on liquidity, and on the cost of capital.

Financing, Results, and Tax Planning (PLAN)

PLAN allows firms to make an integrated 5-year-projection of finances, profits, and taxes, based on the latest balance sheet and income statement. The consequences of alternative investment projects and forms of financing on operating results, on tax burden and on liquidity are simulated. Projected statements can then be used as an aid in formulating new strategies.

System for Management Information and Diagnosis (MIDIAS)

This is a question-orientated, computer-aided interactive program to analyse the performance and financial position of a company. It is a PC application within the DATEV-system for Distributed Processing (DVS) (qv.). Information stored at DATEV can be analysed, in addition to data collected directly at the tax consultant's personal computer. MIDIAS consists of five parts: profit analysis; balance sheet structure analysis; growth and cash flow analysis; ratio analysis; and time series analysis.

Tax-Consultancy Office Organisation

DATEV has for many years offered programs on tax consultancy which can be adapted to the specific needs of each member:

Office Organisation, Time and Activity Studies

This system offers practical help for decisions and organisation in the tax-consultancy office. Evaluations (standard as well as individual) are provided by employee, client or activity. As these are based on time-logging by employees, it is possible, using given standards in marks, time or direct costs, to make 'quota v. actual' comparisons.

Addresses and Statistics (ASP)

This system manages the time-consuming/routine production of lists, card-indexes, address labels, membership cards and membership fee billing for attorneys, tax-consultants, and other professional associations. Program applications can be interfaced with other DATEV programs.

Data Exchange

Tax-consultant members of DATEV and some of their large company-clients use data collection devices to convert data from source documents to some form of electronic media. DATEV accepts data on the following media: optical readable tapes, optical readable forms, magnetic tape cassettes, and floppy discs. However, 98% of data reaches DATEV online.

Teleprocessing

Since 1974 DATEV has offered its members teleprocessing services. Data collected on magnetic tape cassettes in the tax-consultant's office during the day can be processed later during non-business hours. Overnight, automatic uploading takes place between the user's terminal and DATEV's Computer Centre in Nuremberg. To reduce costs for its members, DATEV decided to build up its own telecommunication network. The network consists of 39 nodes in Germany (including the former DDR) and telephone lines leased by DATEV from the Deutsche Bundespost.

Regardless of the location of the member's office, telephone charges are at local call rate. If there is no node in the immediate vicinity, costs in excess of local call charges are reimbursed.

Distributed Processing

Since the summer of 1984 all DATEV's services have been available over the Distributed Processing System (DVS). This system allows a direct link between DATEV's mainframe computers and PCs located in tax-consultants' offices. This allows the tax-consultant at any given time to choose the best method of data processing for a given requirement, with a choice between batch-processing at the Nuremberg Computer Centre, a direct on-line dialogue, or a fully autonomous PC application.

Data Banks**Tax Law Data Base (LEXinform)**

In 1968 DATEV, together with 3 publishing houses, began to investigate tax-law retrieval and word processing systems. In 1970 DATEV started to build up a large data base in conjunction with the tax authorities in the state of Bavaria. In addition, this data-base included regulations and contributions from relevant journals.

Today the data base consists of more than 100,000 fiscal documents, the majority in full text. DATEV estimates that every year approx. 1,400 fiscal court decisions, 1,200 administrative regulations, and 2,000 important contributions from professional journals are added.

Ordinary telephone lines are used for data collection as well as for information retrieval. This special database service is currently unique in Germany and has become indispensable to many tax-consultants in their day-to-day business.

From November 1993 LEXinform has become available on CD-ROM as LEXinform-CD, providing 10 years of historical data.

Grants and Subsidies Database

The aim of this database is to provide information and advice to small and medium-sized firms which do not have the resources of large firms with a larger staff and separate tax departments.

A database inquiry system using an on-line dialogue provides information about aid programs sponsored by the Federal and regional governments for trade and industry and self-employed professions. Descriptions of over 360 such individual programs are currently available.

Company Strategies**(a) Company Direction**

DATEV's main strength lies in its position as both a co-operative society and an established service vendor organised to supply exactly the services required by its members and their client companies. It is the ultimate "customer orientated" company. DATEV has kept abreast of changes and developments in the tax consultancy profession and has broadened and enhanced its services accordingly.

DATEV has continued to grow and expand at a time when the European economy is taking its toll of software and services players. Although cynics might attribute its 21% and 14% revenue growth in the last two years to expansion of business into the erstwhile DDR, the concomitant 49% and 98% growth in post-tax profits cannot but be admired/envied!

DATEV has still not ventured outside the German market and as a non-profit seeking organisation is unlikely to do so. This is not viewed as a weakness as DATEV continues to have such a stronghold in the niche market in which it operates (32,775 members and 1.6 million clients), that it is unlikely to lose its market position to other service organisations.

(b) Conclusions

DATEV is a unique company. It was founded as a co-operative society and a non-profit organisation to provide a much-needed service in the niche market which it has continued to supply for the past 27 years. Throughout its history DATEV has steadily increased revenues and reported respectable profits, going from strength to strength and reporting a 1992 turnover of DM 846.2 million (an increase of 14% over 1991) and net profits of DM 21.6 million (an increase of 98%).

The main bulk of the company's revenues come from processing services, which INPUT estimates were worth DM 595 million in (1992?). DATEV also offers a complete set of application programs for the tax consultancy profession which accounts for 15% of revenues.

DATEV's position as the leading player in its market has made it the largest independent software services company in Germany and a major European vendor, despite its lack of activity outside its domestic market.

INPUT expects DATEV to remain within the tax consultancy profession and to retain its position as the leading services supplier to this market for the foreseeable future.

COMPANY PROFILE

DIGITAL EQUIPMENT CORPORATION

Corporate Headquarters
146 Main Street
Maynard, Massachusetts 01754-2571
Tel: (508) 493 5111
Telex: 4430127 Digital ACT
Fax: (508) 493 8780

President: Robert B. Palmer
Status: Public
Total Employees: 93,200
Employees in Europe: 30,136
Total Revenue (FYE 6-93): \$14,371 million
European Revenue: \$6,974 million

DIGITAL EQUIPMENT CORPORATION

European Headquarters
International (Europe)
12 Avenue des Morgines
Case Postale 176
CH-1213 Petit-Lancy 1, Geneva
Switzerland
Tel: (41) 22 709 4111
Telex: 845 422593 DEC CH
Fax: (41) 22 7094140

President, Europe: Vincenzo Damiani

REF ID: A111111

The Company

Digital Equipment Corporation is a leading worldwide supplier of networked computer systems, software and services. It describes itself as *"the world's leader in open client/server solutions from personal computing to integrated worldwide information systems"*. Indeed, Digital pioneered interactive, distributed and multivendor computing.

An international company, Digital does more than half its business outside the United States, developing and manufacturing products and providing customer services in the Americas, Europe, Asia and the Pacific Rim. Digital offers a full range of desktop, client/server, production, and mainframe systems for multivendor computing environments. Applications include transaction processing, data management, telecommunications, finance, real-time data acquisition and control, vector processing, education, publishing, manufacturing, software development, and healthcare.

At the start of 1993 Digital held the leadership position in mid-range systems though Hewlett Packard is expected to have won top spot in 1993. Over recent years Digital has capitalised on its strength in departmental and distributed computing, enabling it to expand beyond its traditional emphasis on scientific and technical computing to include the general office and administrative

applications. Digital has shifted its focus from satisfying minicomputer-based departmental information requirements to providing mainframe-based enterprise information capabilities, although more recently the emphasis has now moved to networked client/server architectures and the integration of multivendor computing environments.

Although Digital operates in virtually all industry sectors, primary industry markets for Digital include telecommunications, education, US federal governments, aerospace, automobile manufacturing, banking and finance, health care, and process manufacturing.

Digital is a publicly held company quoted on the NYSE and a number of other stock exchanges throughout the world. Digital had developed primarily through organic growth until 1988, when it began actively to seek alliances to strengthen its position in Europe. It acquired Mannesman-Kienzle in 1990, Philips minicomputer line in 1991 and in June 1992 agreed a major alliance with Olivetti. These major deals have been complemented by a range of smaller alliances, often on a local country or regional basis.

These acquisitions and alliances, as well as purchasing technology, will assist Digital in addressing small and medium-sized enterprises, as growth in the traditional large company sector decreases.

Digital like all other system vendors has been facing a crisis brought on by:

- declining demand for proprietary products
- industry recession
- new business at low margins.

Financial Information

Exhibit A shows Digital's latest five-year financial summary while Exhibit B provides the company's key financial ratios. It can be seen that the company's overall revenue growth slowed to single figures on entering the 1990s, bottoming at zero growth in 1992. Profitability was even harder hit, reaching a net loss of nearly \$2.8 billion in that year. However, 1993 has seen a reversal of this downward trend with a return to modest revenue growth (3%) and much reduced losses (\$251 million).

Exhibit A

FIVE-YEAR FINANCIAL SUMMARY (FYE 30-6) (\$ MILLIONS)

YEAR	1989	1990	1991	1992	1993
Revenues	12,742	12,943	13,911	13,931	14,371
Annual Growth (%)	11	2	7	0	3
Profit before tax	1,336	13	(588)	(2136)	(237)
Profit after tax	1,073	74	(617)	(2,796)	(251)
Annual Growth (%)	(18)	(93)	(934)	(353)	91
Net income per share (\$)	8.45	0.59	(5.08)	(22.39)	(1.93)
Employees Worldwide	126,000	124,000	121,000	114,000	94,000

Source: Digital Annual Reports

Exhibit B

KEY FINANCIAL RATIOS

YEAR	1989	1990	1991	1992	1993
Revenues per employee (\$000's)	101	104	115	122	153
Profit per employee (\$000's)	11	0.6	(5)	(25)	(3)
Return on sales (%)	11	0.1	(4)	(15)	(2)
Return on capital employed (%)	17	0.2	(8)	(43)	(5)

Market Information

Exhibits C and D provide breakdowns of Digital's revenues by region and product/service.

As market growth has slowed in the US over recent years, Digital reached a position by the end of the 1980s where the 'domestic' market had ceased to provide the major part of the corporation's revenues, with Europe contributing 40% in its own right, and, together with the rest of the world, just over half (54%). This trend has continued with the result that in 1991 Europe 'overtook' the US as the major revenue-earning region and by 1993 was contributing almost half (49%).

Exhibit C

REGIONAL BREAKDOWN OF REVENUES

YEAR	1989	1990	1991	1992	1993
United States - Revenues (\$m) - Percent	5,849 46	5,824 45	5,586 40	5,154 37	5,219 36
Europe - Revenues (\$m) - Percent	5,130 40	5,243 41	6,217 45	6,751 48	6,974 49
Other - Revenues (\$m) - Percent	1,763 14	1,876 14	2,108 15	2,025 15	2,178 15
TOTAL	12,742	12,943	13,911	13,930	14,371

Source: Digital Annual Reports

At the same time, the company's service revenues are becoming increasingly important. Through most of the 1980s services accounted for approximately two-thirds of revenues. However, as the hardware product market has become more competitive and margins eroded, services have received more and more emphasis. By 1993 they accounted for almost half (47%) of total revenues.

Exhibit D

REVENUES: BREAKDOWN BY PRODUCT/SERVICE

YEAR	1989	1990	1991	1992	1993
Product sales - (\$ Millions) - Percent	8,190 64	8,146 63	8,299 60	7,696 55	7,588 53
Service/other revenues - (\$ Millions) - Percent	4,552 36	4,797 37	5,612 40	6,235 45	6,783 47
TOTAL	12,742	12,943	13,911	13,931	14,371

Source: Digital Annual Reports

Exhibits E to G provide breakdowns of Digital's European software and services revenues by country and delivery mode.

Exhibit E

**Estimated Revenues by Country, Information Services, Europe
Digital Equipment Corp., 1992**

COUNTRY	REVENUES (\$ MILLIONS)	SHARE (%)
France	485	14
Germany	635	18
UK	730	21
Italy	350	10
Netherlands	187	5
Belgium/Lux	125	4
Spain	159	5
Switzerland	231	7
Austria	72	2
Sweden	142	4
Denmark	57	2
Norway	43	1
Finland	89	3
Ireland	56	2
Portugal	31	1
Greece	10	<1
Eastern Europe	16	<1
Europe Balance	21	1
TOTAL INFORMATION SERVICES	3,435	100

Source: INPUT estimates

Exhibit F

**Estimated Revenues by Industry Sector, Software and Services, Europe
Digital Equipment Corp., 1992**

	REVENUES (\$ MILLIONS)	SHARE (%)
Industry Sectors:		
Discrete Manufacturing	150	7
Process Manufacturing	80	4
Transportation	35	2
Utilities	50	2
Telecommunications	90	4
Retail Distribution	15	1
Wholesale Distribution	50	2
Banking and Finance	170	8
Insurance	15	1
Healthcare	15	1
Education	15	1
Local Government	35	2
National Government	170	8
Business Services	30	1
Other Industries	50	2
Cross-Industry Sectors:		
Accounting	15	1
Education & Training	15	1
Engineering & Scientific	190	9
Human resources	15	1
Office Systems	65	3
Planning & Analysis	15	1
Other Cross-Industry	15	1
Systems Software Products	715	36
TOTAL SOFTWARE AND SERVICES	2,005	100

Source: INPUT estimates

Exhibit G

**Estimated Revenues by Delivery Mode, Software and Services, Europe
Digital Equipment Corp., 1992**

DELIVERY MODE	REVENUES (\$ MILLIONS)	SHARE (%)
Systems Software Products	715	11
Application Software Products	40	1
Turnkey Systems	320	5
Professional Services	505	7
Systems Integration	280	4
Systems Operations	90	1
Network Services	45	1
Processing Services	10	<1
Total Software and Services	2,005	30
Equipment Services	1,430	21
Total Information Services	3,435	51
Equipment/Other Revenues	3,315	49
TOTAL EUROPEAN REVENUES	6,750	100

Source: INPUT estimates

**Organisation
Structure**

When Robert Palmer took over the reins of the corporation in October 1992 he inherited a company which had made more than \$3 billion losses over the previous three years and was losing \$3 million per day.

A major reorganisation followed and over the past year the company has been split into nine industry and product business units

Coupled with this major reorganisation the company's operations have simplified by making the new business units directly responsible and accountable for satisfying customers in a particular market segment as well as for their own financial performance. Profit and loss responsibility is being passed down the line, moving away from the from the centralised approach of the past.

European operations are now headed up by Vincenzo Damiani recently recruited from IBM. He has taken over from Richard Poulson as corporate vice president and president of Digital Europe. Three objectives have been declared by the new European president: create sustainable growth, increase efficiency, and optimise customer-focused management systems and processes.

The new structure, mirrored throughout the worldwide organisation (although at different levels of implementation in different countries) is shown below, with the European co-ordinator role identified where known:

Digital Organisation

Customer Business Units

- | | |
|---|-----------------------|
| • Discrete manufacturing & defence | Wolfgang Jaeger |
| • Consumer & process manufacturing | Sergio Giacometto |
| • Financial, professional & public services | Per-Olof Loof |
| • Communication, education, media | Jean-Claude Saintavit |
| • Health industries | David Toso |

Product Business Units

- | | |
|---------------------------------|------------------|
| • Storage | Werner Burckhart |
| • PCS | Bernard Auer |
| • Components & peripherals | Barry Maloney |
| • Multivendor customer services | Gianni Messori |

Delivery Channels

- Integration & professional services
- Partners
- Merchandising
- Multivendor customer services delivery

Core Functions

- | | |
|-------------------------------|---------------|
| • Finance | |
| • Logistics & supply services | |
| • Human resources | Giorgio Corsi |
| • Legal services | Beat Stiefel |
| • Sales | Pete Smith |
| • Marketing | Pete Smith |

The five Customer Business Units have been defined to coincide with natural customer groupings, in line with its stated aim for increased customer focus:

Discrete Manufacturing & Defence Industries

This unit covers the traditionally strong Digital markets of:

- Automotive
- General Discrete Manufacturing
- Electronics
- Aerospace
- Defence & Intelligence

Consumer, Process Manufacturing & Transportation

This unit is targeting the following markets:

- Utilities
- Travel/Transport
- Oil/Gas
- Chemicals
- Consumer Products
- Forest/Metals//Mining/Glass

The aim is to cater for the whole value chain, from production of goods and services through to delivery to the customer.

Financial, Professional & Public Services

Markets are:

- Banking
- Insurance
- Public Administration
- Central Government
- Local Government

Communications, Education and Media

This unit serves the telecommunications, entertainment industries, as well as education and research.

Health

Segments addressed include:

- Healthcare Providers (hospitals, medical research)
- Healthcare Purchasers (ministries, authorities, insurance companies)

- Suppliers (pharmaceutical, biotechnology companies)
- Regulatory Bodies

The four product-orientated business units are defined by the nature of their products or services, each designed to capitalise on a particular Digital core competence:

PCs

This unit is very much a stand-alone entity and represents one of Digital's fastest growth areas. It has aggressive plans and is targeting a trebling of revenues during 1993/94 financial year. Robert Palmer has been quoted as expecting this unit to account for one fifth of Digital revenues by 1995.

Storage

Similarly autonomous, this unit is seeing growth in sales not only to existing customers but to other computer manufacturers.

Components & Peripherals

This unit aims for volume sales primarily through third party distribution channels.

Multivendor Customer Services

This unit covers the entire spectrum of services from planning and design through to complete integration and does not restrict its operations to customers with only Digital hardware and/or software.

The reorganisation, which is aimed at transforming Digital into a *"leaner, more responsive, more competitive corporation"* (1993 Annual Report), has necessarily caused heavy casualties. The corporation had at its peak in 1989 over 125,000 employees worldwide. By the end of the latest financial year (June 1993) this count had fallen to just over 94,000 (see Exhibit A) and is understood to have reduced by a further 1,000 by October 1993. Digital has intimated that analysts' predictions of a final headcount of between 85,000 and 90,000 are not unreasonable.

However the flow of personnel is not entirely in one direction. Robert Palmer has done something his predecessors would not have dreamed of - fresh "blood" has been brought in. The UK offers a prime example of this with the early appointment of Chris Conway as Managing Director, an ex-IBMer.

Sales and marketing, traditionally very low key activities, have been given a new prominence. Channels have become a key issue.

There are a number of European Competence Centres which specialise in particular market segments. For example, London deals with the Service Industries; Birmingham specialises in the Process Industries; Munich works with the Manufacturing Industries; Geneva concentrates on Research, Education and Science; Brussels deals with Government and Healthcare; while the speciality of Sophia-Antipolis in the South of France is Networks, Telecommunications and Corporate Information Systems.

Sophia-Antipolis in France houses Digital's European Technical Centre, which represents a strong concentration of computer expertise, and provides a wide variety of services as back-up for the Digital Field Service personnel operating from locations throughout Europe. It provides a round-the-clock remote diagnostics service which allows system malfunctions on Digital's VAX family at any one of 10,000 customer installations to be diagnosed via a telephone line.

DEC is shifting power from its national subsidiaries into Europe-wide marketing organisations responsible for industry sectors in an effort to achieve greater market and customer focus..

Recent Acquisitions/ Alliances

Digital has fundamentally developed organically as a company.

However, within Europe since the turn of the decade, it has made two significant acquisitions, those of the Kienzle systems house operation of Mannesmann in 1990/91 and in July 1991 of the Philips Information Systems minicomputer operation.

Effective January 1, 1991, the Company acquired from Mannesmann AG 65% of a new company formed from the Mannesmann Kienzle Computer Systems Division, and the PROCAD GmbH and PCS GmbH divisions of Mannesmann Kienzle. The new company became Digital-Kienzle Computersysteme GmbH & Co. K.G. (Digital-Kienzle). The Company's investment in Digital-Kienzle was \$233 million. This investment advanced the Company's strategic thrust in selling to small and medium-sized businesses worldwide and complemented a series of new products, services and channels for small and medium-sized businesses announced by the Company during that year. The investment also complemented the Company's development and support of UNIX-based applications and

enhanced the Company's position in selling into emerging markets in central and eastern Europe.

Consistent with this strategy, shortly after the close of the 1991 fiscal year, the Company reached an agreement with Philips Electronics NV. of the Netherlands to acquire most of the Philips' Information Systems Division.

In June 1992 Digital forged a significant strategic alliance with Olivetti. Previous collaborations in the areas of OEM manufacturing, logistics and R&D had stretched back over a 20 year period. Olivetti had been supplying Digital with PCs and Notebook Computers, networking and printers, while Digital had been providing Olivetti with terminals, mass storage units and minicomputers used in embedded applications. Olivetti has also been manufacturing a significant number of Digital PCs for resale in Europe under an OEM manufacturing agreement.

The 1992 alliance was designed to allow both partners *"to complement existing resources in terms of R&D, open systems development and sales and distribution of Alpha AXP RISC technology"*. The Alpha AXP RISC chip is seen as the main cornerstone of the partnership, allowing both parties to share technology while differentiating their products.

The alliance is focusing initially on Europe with the intention of expanding to a global collaboration in jointly developed and marketed products.

The agreement provides for a long-term relationship (renewable after 5 years). Initially Digital agreed to purchase a 9.95% stake in Olivetti (at a cost of \$322m), consisting of an immediate acquisition of 20,250,000 shares for just over \$140 million (4.03% of Olivetti's common stock), followed by the balance by July 1994 in two further phases. However, the arrangement has since been accelerated. By May 1993 Digital in fact purchased a further 29,750,000 shares for \$182 million, giving it the agreed 9.95% holding.

Under the agreement Digital gains one seat on the Olivetti board (nominated as Enrico Pesatori, Head of Digital's worldwide PC business unit), with a further seat as the alliance progresses. However, under the agreement Olivetti preserves its independence.

Although the agreement focuses on the Alpha technology, Digital has stated that there is *"scope for the two parties to co-market*

products and services in both Europe and the US, such as in banking and retail".

Digital has many smaller alliances in place and, indeed, has been actively seeking them since 1988. Examples include:

DESISCO (UK)	systems integration in dealing rooms
SIPAC (Italy)	non-Digital multivendor capability
ACRI (France)	product technology development

Major Projects

INPUT estimates that Digital has undertaken approaching 1000 Systems Integration projects over the past several years ranging in value from hundreds of thousands of dollars to over \$250 million, with an average between \$5 million and \$10 million.

Several SI efforts undertaken by Digital, for which the dollar values are known to INPUT, are shown in Exhibit I.

Exhibit I

EXAMPLES OF PAST DIGITAL PROJECTS

COMPANY	PROJECT DESCRIPTION	\$ MILLIONS
Firestone	Computer Integrated Manufacturing (CIM)	21.0
HFSI	Paperless factory	10.0
Nissan	Paperless factory	8.0
Boeing	Sheet metal plant automation	52.0
BIMCO	International shipping network	100.0
Deutsche Telepost	Telecommunications Integration	100.0
Tyson Foods	Logistics	9.2

Digital's SI projects have encompassed applications ranging from computer-integrated manufacturing to inventory management and network integration.

In addition, major projects have in the past been undertaken for the Canada Treasury Board and W.H. Smith (a UK retailer).

Other projects have included:

- In the current year, 1993, Digital has a \$27 million contract with the Goodyear Tyre and Rubber Company to install and maintain thousands of PCs. 2,600 DECpc systems are being installed at Goodyear stores all over North America; 1,600 PCs will be installed in Goodyear-owned stores and another 1,000 at Goodyear dealers. These PCs are being integrated by Digital with the third party hardware and software required to implement Goodyear's Business Management System.
- Digital is currently developing SINS, California's Statewide Integrated Narcotics System, which combines relational databases, a geographic information system, computer imaging, remote and mobile access, high security into a single integrated network system. SINS represents \$500 million potential sales for Digital.
- Sabena, the Belgian airline, has recently outsourced the maintenance of all its desktop equipment (PCs, printers, communications modules) to Digital. This includes equipment of varying age, from multiple suppliers. In fact, prior to this contract Sabena had not been a customer of Digital. Digital was chosen because Sabena's desire for a single source of support but with international capability, as well as the capability and willingness to integrate and support other suppliers' products.
- In November, 1990, Digital announced that it was proceeding with a \$60 million SI effort for an unnamed petrochemical process manufacturer in England.
- In 1990, Digital won a major CIM contract to rebuild the production and business planning systems for Nissan's Smyrna, Tennessee truck plant. Digital also won multimillion dollar SI contracts at BIMCO, Deutsche Telepost, Canada Post, Bankers' Trust, and Tyson Foods.
- In March, 1989, Digital won one of its largest SI contracts for automation of a Boeing sheet metal fabrication facility.
- In 1989, Digital won the network management component of the Kodak outsourcing contract. Digital is clearly a leader in network integration and management; this contract was a major event in the 1989 information services market.
- The development of a cellular telephone system for the German post office.

- US. Navy contract, valued at \$140 million, to provide system based around up to 8,000 local area networks.

Products and Services

(i) Technologies

Through the 1980s Digital spent a consistent 11% of revenues on Research and Engineering (R&E). However the 1990s saw this rise to over 12% by 1992. R&E was, not surprisingly, an early area of concern and focus for the incoming Robert Palmer.

In financial year 1993 R&E expenditure dropped by 13% to \$1.5 billion, 10.6% of revenues. Further reductions seem likely based on announced 1Q 1994 R&E figures of \$315 million, 10.25% of revenues of \$3.1 billion.

Much of this investment continues to be incurred in developing software to support open, multivendor networking. One key product is Network Application Support (NAS). Conceptually, NAS bridges the differences among various operating environments and industry standards so VMS, UNIX, MVS, MS-DOS, OS/2, Macintosh and other systems can work together in a single open environment.

Coupled with NAS, ADVANTAGE-NETWORKS integrates OSI, TCP/IP, and DECnet protocols to provide the infrastructure needed to connect personal computer networks, Ethernet and token ring local area networks, SNA networks, Novell networks, and public and private wide area networks to support distributed applications, client/server computing, and inter-enterprise communications.

COHESION includes the CASE tools, repository, fourth-generation languages, and the services needed to develop, deploy, and manage applications in open computing environments, while CDA - Compound Document Architecture - enables organisations to exchange multimedia documents containing text, graphics, images, and voice across different systems and applications.

One major area of technology focus has been the Alpha AXP program. The Alpha offers an advanced 64-bit microprocessor architecture and provides what Digital describes as a "universal platform", supporting UNIX as well as Open/VMS and the newly-emerging Windows NT. It is an architecture designed to last 25 years (as was that of the VAX in its time) and was introduced in November 1992. By the middle of 1993 Digital had announced 22 different models based on this architecture. It is building a 3rd

production facility for the Alpha chip at an estimated cost of over \$400 million, as well as licensing Mitsubishi to produce the chip as a second source of supply.

Digital is working with more than 50 research bodies in Europe through its External Research Programme. A new campus engineering centre at Karlsruhe, Germany, for example concentrates on networking, and in the AI field specifically, Digital is working closely with the universities of Marseilles and Edinburgh on one of the major world languages for AI applications.

Perhaps the key aspect of Digital technology, and one which the company is at pains to stress, is that it supports multiple computing environments (ie. not just its *own*) and has developed technologies to link disparate systems. This gives it the capabilities required to undertake major systems integration projects.

(ii) Industry Knowledge

Digital markets its products and services to worldwide vertical industry markets; however, Digital has chosen to focus its efforts in the following key vertical markets:

- Consumer/Process Manufacturing/Transportation
- Discrete Manufacturing/Defence
- Financial/Professional/Public Services
- Telecommunications/Education/Media
- Health.

For further details see Section on Organisation structure.

(iii) Key Application Products

Digital has extensive (perhaps the most) experience in developing applications software for minicomputers. Even though in-house expertise might be limited in some vertical markets, Digital's strong network of alliances and third-party developers has produced a full range of applications for Digital platforms.

There are hundreds of third-party suppliers that develop software for the Digital environment. INPUT believes that Digital has strengthened its ability to create continued interest in developing packages for its platforms.

NAS software is now being used as the foundation for a wide range of Digital applications and solutions, such as the NAS Environment for Manufacturing. More than 900 independent software developers have built over 2,000 applications using NAS.

Overall, Digital has formal alliances with over 3,600 Complementary Solutions Organisations who have developed over 7,000 applications for VAX systems, 1,500 applications for Digital RISC systems, and over 300 DECWindows Motif applications for the desktop.

The bulk of Digital's business still revolved around the VAX range of processors, one of the company's established strengths, and the proprietary VMS architecture. However, the introduction of NAS has provided a common application programming interface across differing platforms and allows Digital to leverage an ageing product range, as well as to interface its systems with those of other suppliers.

Strategic Analysis

(a) Company Direction

Digital describes itself as focusing on:

"products and services that deliver leadership performance and price/performance in systems, networks, and applications."

It offers a wide range of services in its attempt to provide everything needed to complete the job for the customer. The company's service organisation designs and installs networks, integrates systems, runs complete information shops, supports standard PC software, runs networks of PCs, and provides all the services the customer wants, or needs after the equipment has been shipped. This business is growing and profitable and is key to the company's success.

Systems Integration, known to Digital as "Multivendor Customer Services" (MCS) is an important delivery channel for Digital's products and services and is recognised within the company as an area of high growth opportunity. The new organisation sees MCS as a product business unit in its own right and supported by a dedicated Multivendor Customer Services Delivery channel unit.

Digital, as a major minicomputer vendor, has been offering a systems-orientated (hardware and software) solution to its customers for many years. This sales position, coupled with its internal and custom software development activities, made the

move into large-scale SI efforts a natural undertaking. Digital is aggressively pursuing SI business in the hundreds of thousands to multimillion-dollar range and see as competitors IBM, Andersen Consulting, and EDS. It competes with these vendors in both its government and commercial business pursuits.

In addition to Digital's general financial health, Digital's primary competitive advantage is its integrated computer architecture, which permits modular systems expansion and software compatibility across hardware/software platforms. In addition, Digital benefits from an extensive library of third-party and in-house-developed applications software and the growing use of its equipment in general-purpose departmental environments. Additional advantages include:

- An integrated office automation offering, All-In-One
- Sound fiscal management and an enthusiastic user community.

Digital continues to seek an increasing presence in the worldwide SI market; it accomplishes this by increasing the number of its target industries and increasing the scope of its strategic alliances.

Digital's objective in the SI market place had always been to become the "No.1 world class systems integrator," that is, to be the leading systems and support integrator, encompassing the full range of business needs in an integrated, multivendor, enterprise-wide environment.

As a result of this, Digital clearly continues the shift in its approach to meeting its customers' needs from hardware and software solutions, to enterprise-wide systems and services solutions. For Digital SI services are no longer an adjunct to the sales and maintenance of computer equipment and software. SI services have become the primary focus of the organisation.

Digital has increasingly broadened its services marketing strategy to include larger and larger projects in its worldwide markets. As a systems integration services vendor, Digital can propose combinations of Digital and other manufacturers' equipment and software in whatever combination best meets the clients' needs.

Digital has described its strategy very simply as the following:

- Build a foundation
- Target the market
- Develop service alliances
- Deliver globally.

As attested by the recent reorganisation and increased customer focus, Digital is targeting its chosen vertical markets worldwide. (In the past it had "targeted" *all* vertical markets.) Digital has developed a wide range of alliances with complementary services vendors that permit Digital to propose all required SI services. Digital now expects to grow through its performance in the worldwide SI market.

In addition, Digital's strategy is now to provide a complete solution within a vertical industry, rather than trying to compete for small pieces of many requirements. To this end, its strategic alliances form partnerships with services vendors who can help Digital provide complete solutions.

The ability to integrate multivendor environments into a single networked entity offering transparent application services is key to Digital's approach to systems integration.

Targeting industry sectors at a very detailed level is another key element of Digital's strategy.

Digital has good coverage of both the US. and Europe. However in the past the bulk of Digital's systems integration activity has been based in the US. There are signs that this may be changing but Europe has some way to go before it "catches up" with the scale of projects seen over recent years in the US.

Digital has entered into strategic alliances with other SI services vendors whose capabilities complement Digital's; these alliance agreements also allow Digital to respond to clients' solutions much more rapidly, eliminating the normal search time for matching skills and availability. (See also Section on Acquisitions and Alliances).

Digital uses alliances in virtually all aspects of its SI business. Key alliances are negotiated on a supplier-by-supplier basis. In Digital's own words, the programme is presented to the customer environment as follows: *"Building the best solution for customer's enterprise-wide project requires many components. Creating and delivering that solution may require the use of third parties."*

The programme provides for formal relationships with leading service suppliers in selected technologies, industries, and application areas and it enhances the breadth, depth, and capacity of Digital total solution services. It conveys to customers that

Digital can be the single source for their company-wide service needs.

(b) Strengths & Weaknesses

Digital offers the full range of SI services. Consulting, design/integration, project management, hardware, communications products, systems software, etc. In particular Digital has a wide range of specific telecommunications-orientated SI capabilities. Its strong financial position and growing capability to understand the risk management associated with SI make it a credible competitor.

INPUT evaluates Digital as follows:

- **Business Consulting** - At one time a weak area, Digital is investing significantly to increase its capabilities in this field. Its activities are focused on enterprise planning and the identification of strategic opportunities. Partners and alliances are used in this area, but Digital continues a campaign to acquire this skill by hiring or allying with experienced practitioners to operate in both a marketing and a consulting capacity.
- **Design Integration** - Digital has established a reputation for being able to integrate its offerings with those of other computer hardware and communications equipment manufacturers. This is one of Digital's real strengths. In addition, the unified nature of Digital's own product architecture is an advantage. Integration at the network level is Digital's major strength.
- **Project Management** - INPUT believes that Digital has demonstrated strong skills in the project management area. Digital has also invested heavily in developing a programme management approach that should strengthen its capabilities in this area for jobs like the Boeing project.
- **Education, Training, and Documentation** - Digital has a highly developed system for education and training, and is probably better than most at being able to deliver this service flexibly.
- **Standard Computer Hardware** - Digital's integrated VAX/VMS architecture and workstation line give Digital a complete offering in the on-line applications systems market.

The Alpha chip, if successful, gives it an 'upgrade' path for the future.

- **Communications Hardware** - Digital's line of communications equipment is targeted primarily at Digital proprietary environments. Digital, however, provides communications systems software that permits Digital systems to communicate effectively with almost all standard network environments.
- **Network Management and Operations** - Digital is a leader in managing worldwide networks and providing network management software. Although Digital has, in the past, dealt mostly with homogeneous Digital networks, INPUT notes that Digital's commitment to communications standards and its increasing presence in the SI market is forcing it to deal more often with heterogeneous communications networks. It is beginning to turn this from a vice into a virtue.
- **Service and Repair / Software Maintenance** - This is another of Digital's strengths. Through its Vendor Equipment Services offering, Digital is servicing heterogeneous environments for 14,000 products and applications representing over 800 vendors.

Digital has a full array of capabilities to compete in the SI marketplace.

Major strengths are the breadth and depth of Digital's alliances and increased customer orientation. INPUT believes that Digital has shown itself to be capable of managing very large projects and of managing risk.

A former Digital weakness was a perceived lack of vertical industry expertise outside the scientific/technical areas. However, Digital's many alliances with partners that provide the needed expertise in other industries, combined with Digital's focused Competence Centres and the newly focused business unit structure are all combining to overcome this weakness.

Exhibit J summarises INPUT's current assessment of Digital's SI capabilities.

Exhibit J

INPUTS EVALUATION OF DIGITAL'S SI CAPABILITIES

STRENGTHS	WEAKNESSES
Integrated VAX/workstation architecture	Perceived lack of ability in non-targeted vertical industries
State of the art Alpha technology	Market acceptance of Alpha?
Selection, acquisition, and maintenance of third-party equipment	
In-house technical expertise	
Geographic coverage	
Depth/breadth of alliances	

(c) Conclusions

Digital's strengths include its ability to manage projects involving distributed processing, networking, and communication across various vendors' processors. Network design and management capabilities are crucial to being a successful integrator; Digital scores highly in this area.

Additional strengths include:

- Communications hardware and software products that enable Digital hardware to communicate with non-Digital computers
- Strong account presence through its worldwide service staff
- Financial strength, internal technical skills, and capability to manage larger-scale projects and their associated financial risks
- A more customer/market-focused organisation rather than Digital's traditional "technical sell".
- A rich portfolio of internally developed and third-party applications software product offerings.

Digital has few perceived weaknesses, other than a potential lack of objectivity in approaching the hardware and software component issues of the solution, although there are signs that this old attitude is dying as the organisation becomes more market-focused.

As INPUT predicted in its previous profile of Digital, the company has indeed moved towards "a fully matrixed, decentralised, organisational structure for administration, sales, and marketing of its SI activities". In addition, INPUT believes that Digital will continue to target large-scale, international, and publicly visible SI projects to enhance the reputation of its offering, and has already initiated more aggressive education of internal field personnel to help promote the SI strategy, not to mention the institution, for the first time in Digital's history, of a sales incentive/commission programme.

Strategic Assessment

Digital, although one of the strongest system vendors operating on a world scale is having to face radical changes to its approach to the market driven by downsizing and the open systems challenge.

It is facing major issues of profitability and cost control as at the same time it attempts to resolve the conflict inherent in being simultaneously, a technology leader, a mass marketer of packaged system and major service company.

It is in the last area where it is perhaps the weakest and its past claim to derive approximately 45% of its revenues from services is largely based on its remedial equipment maintenance stream.

It is possible that Digital's systems integration initiatives will be overridden by the momentum of the organisation's focus on medium systems packaged products, although the recent reorganisation should go a long way towards redressing this.

In the last profile DIGITAL was considered an outsider to achieve a consistent long-term major player status in large scale systems integration contracting. The odds have shortened.



COMPANY PROFILE

DUN & BRADSTREET SOFTWARE

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Atlanta, GA 30326
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Tel.: 1-404-239-2000

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CEO: Hank P. Holland
Status: Subsidiary
Revenues: \$533 Million (FYE 31-12-92)

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The Company

Dun & Bradstreet Software, the largest subsidiary of the Dun & Bradstreet Corporation's Software Services segment, describes itself as *"the world's leading provider of financial, human-resource, distribution and manufacturing software and related services"*.

Dun & Bradstreet Software was formed at the beginning of 1990 by the merger of McCormack & Dodge (M&D) - acquired in 1983 - and Management Science America (MSA), which was acquired at year-end 1989.

McCormack & Dodge and MSA had been two of the market leaders in providing accounting systems on IBM mainframes throughout the 1970s and 1980s.

D&B Software successfully integrated the operations of M&D and MSA during 1990 and reported solid growth in revenue and operating income in 1990, compared with the combined results of the two companies in 1989.

In 1991, D&B Software reported only a slight increase in revenues. Operating income decreased, reflecting, in part, investment spending on client/server-based products. 1992 results showed a slight decline in revenues, after allowing for divestments (4%) and an even more substantial drop in profitability (56% reduction in net income).

The company serves more than 10,000 customers in more than 60 countries worldwide, including a claimed 75% of the *Fortune* 500 companies.

Financial Information

As a wholly owned subsidiary of the Dun & Bradstreet Corporation, D&B Software does not publish separate accounts, although high level aggregation data is available.

Exhibit A shows the financial summary for the Software Services Division as a whole. Accordingly, this includes revenues for all its subsidiaries, although the overwhelming majority of these revenues are accounted for by D&B Software subsidiaries:

- Dun & Bradstreet Software
- Sales Technologies
- Erisco
- Information Associates (*but see notes to Exhibit A*)

(Note: if comparing these figures with previously published sets, please note that historical results have been adjusted to allow for restructuring within Dun & Bradstreet.)

Exhibit A

FIVE-YEAR FINANCIAL SUMMARY (\$ MILLIONS) D&B SOFTWARE SERVICES (FYE 31-12)

	1988	1989	1990*	1991	1992
Revenues	201	230	558	557	533
Annual Growth Rate (%)	15	15	131	-	(4)
Operating Income	13	33	57	43	19
Annual Growth Rate (%)	86	154	73	(25)	(56)

* The 131% growth in revenues in 1990 reflects the acquisition of MSA, organic growth being 10.3%.

- 1992 includes Information Associates up to its divestment in June. If excluded, revenue growth would have been (1%).

The 1992 decline is attributed by the company to the *"continuing impact of weakness in both the mainframe computer industry and the economy"*.

Exhibit B below summarises the financial performance of Dun & Bradstreet Corporation, the parent company.

Exhibit B

FIVE-YEAR FINANCIAL SUMMARY (\$ MILLIONS)
D&B CORPORATION (FYE 31-12)

	1988	1989	1990	1991	1992
Revenues	4,267	4,319	4,837	4,651	4,751
Annual Growth Rate (%)		1	12	(4)	2
Operating Income	863	786	787	744	786
Annual Growth Rate (%)		(9)	-	(5)	6
Net Income	499	584	507	507	554
Annual Growth Rate (%)		17	(13)	-	9

Dun & Bradstreet, the parent, showed a continued recovery in 1992 from its 1990 plunge in profitability. 1991 held income flat on a reduced turnover and 1992 saw slight growth return to revenues but a proportionately greater increase in profit levels.

This is due to restructuring and substantial staff cuts over recent years (14% over 4 years).

The Software Services segment, represented chiefly by Dun & Bradstreet Software, in 1992 contributed 11.2% of group revenues and only 2.4% of its operating income.

In its 3rd Quarter 1993 results D&B refers to continuing "weakness" in Software Services (as well as in its Directory Information Services), without which it would have achieved 15% revenue growth compared with the same period in 1992. D&B has stated that it expects its overall performance to be *"dampened by weak economic conditions, particularly in Europe"*, but is continuing to take actions to increase productivity and competitiveness.

Market Analysis

Exhibit C

**Estimated Revenues by Industry Sector, Software and Services, Europe
Dun & Bradstreet, 1992**

	REVENUES (\$ MILLIONS)	SHARE (%)
Industry Sectors:		
Discrete Manufacturing	20	6
Process Manufacturing	10	3
Transportation	5	2
Utilities	5	2
Telecommunications	5	2
Retail Distribution	5	2
Wholesale Distribution	5	2
Banking and Finance	55	18
Insurance	10	3
Healthcare	5	2
Education	5	2
Local Government	5	2
National Government	5	2
Business Services	5	2
Cross-Industry Sectors:		
Accounting	135	44
Systems Software Products	30	10
Total Software and Services	310	100

Source: INPUT estimates

Exhibit D

**Estimated Revenues by Delivery Mode, Software and Services, Europe
Dun & Bradstreet, 1992**

DELIVERY MODE	REVENUES (\$ MILLIONS)	SHARE (%)
Systems Software Products	30	10
Application Software Products	80	26
Professional Services	25	8
Network Services	175	56
Total Software and Services	310	100
Total European Revenues	310	100

Source: INPUT estimates

Exhibit E

**Estimated Revenues by Country, Information Services, Europe
Dun & Bradstreet, 1992**

COUNTRY	REVENUES (\$ MILLIONS)	SHARE (%)
France	70	23
Germany	45	15
UK	75	24
Italy	20	6
Netherlands	19	6
Belgium/Lux	19	6
Spain	19	6
Switzerland	16	5
Austria	3	1
Sweden	6	2
Denmark	6	2
Norway	6	2
Finland	2	1
Ireland	2	1
Portugal	2	1
Greece	2	1
Total Information Services	310	100

Source: INPUT estimates

Organisation

The Dun & Bradstreet Corporation, parent of D&B Software, is split into five divisions:

- **Marketing Information Services**
Accounting for around 40% of group revenues, this segment contains IMS International (supplier of information and decision-support services to the pharmaceutical industry) and A.C. Nielson (world-wide market research agency).
- **Risk Management & Business Marketing Information Services**
This segment produces 32% of D&B's revenues and comprises: Dun & Bradstreet Information Services (DBIS) (supplier of business, commercial-credit and business-marketing information services); Moody's Investors Service (which issues ratings on corporate and government obligations, issues commercial paper and publishes business and financial information); and Interactive Data (which provides securities-related information and software to the N.American investment community).
- **Software Services**
Contributing around 11% of revenues, Software Services comprises three subsidiaries: D&B Software; Sales

Technologies (which provides sales-force management software and services); and Erisco (which supplies software and services for employee-benefits administration.

- **Directory Information Services**

18% of group revenues derive from this area. The company Reuben H. Donnelley compiles and publishes directories, often in partnership with a third party.

- **Other Business Services**

The remaining 8% of revenues derive from various other services, which include: Dun & Bradstreet Plan Services (which provides group health insurance marketing and administration services); NCH Promotional Services (which provides coupon redemption, processing and management services); and Dataquest (market research agency).

Dun & Bradstreet Software, whilst accounting for the bulk of Dun & Bradstreet Corporation's Software Services segment, is not the only subsidiary operating in that segment. The complete list of subsidiaries within this division is as follows:

- *Dun & Bradstreet Software* - produces and markets financial, human resource, materials management, manufacturing and higher education applications software worldwide for mainframe, midrange and personal computers. It also provides customers with a variety of maintenance services.
- *Sales Technologies* - provides sales-force management software and services in the US. and Europe.
- *Erisco* - provides employee benefits administration software and services.
- *Information Associates*, formerly a subsidiary, was divested in mid-1992.

Recent Acquisitions/ Alliances

Most of D&B Software's more recent alliances relate to the development of the SmartStream range of client/server software products.

In February 1993, D&B Software announced a strategic development, distribution and marketing agreement with Micro Focus, developer of DOS, OS/2, Windows and UNIX COBOL compilers and programmer productivity tools for business application development. Under this agreement D&B will distribute an embedded Micro Focus COBOL compiler into its

host-based UNIX Open Millennium product. In April 1993 D&B Software announced an agreement with Microsoft under which SmartStream applications will be developed for the Windows NT platform and D&B Software will become a reseller for Microsoft's Access database.

In September 1993 the company announced an agreement with IBM to bring D&B Software's SmartStream client/server applications onto the IBM RISC System 6000 running under AIX. Product is expected to be available in the second quarter of 1994.

In Italy, D&B Software Italia has a joint-venture agreement with Logica General Systems - LGS Soluzioni Gestionali.

Based in Milan, with a combined client base of more than 150 installations, LGS Soluzioni Gestionali offers all D&B Software products in addition to a locally developed information management system for receivables and payables called Clienti Fornitori (CLIFO) that was designed specifically for the Italian market-place.

The company also has a whole host of technology partnership agreements, as well as many development agreements with most of the major hardware suppliers, including IBM, ICL, Digital, Hewlett-Packard and Data General.

It is also keen to develop further its growing relationships with the major management consultancies.

Key Products and Services

D&B Software specialises in the development, marketing and support of products and services for three key technologies which it sees as the emerging priorities for its customer base. These are:

- Fully distributed client/server transaction processing applications for the following segments:
 - Accounting and finance
 - Human resource management
 - Manufacturing and logistics
- "Right-sizing" applications (such as the company's UNIX, Digital VAX and PC LAN products), designed to run on multiple platforms
- IBM host-based applications for general business needs.

D&B Software divides its products into three categories: decision support products; applications; and tools. Exhibit F lists the products under these three headings:

Exhibit F

DECISION SUPPORT PRODUCTS
SmartStream InterQ SmartStream Analyzer SmartStream Management Reporter
APPLICATIONS
General Ledger System Currency Management System Inventory System Purchasing System Accounts Payable System Accounts Receivable System Project Management System Fixed Asset System Budgetary Control System Financial Controller System HR Personnel/Payroll System Benefits Administration System Time Entry Workstation ALLTAX The Human Resource Healthcare Decision Support System Remote Inventory Control System Advanced Manufacturing Applications Product Suite Factory Control and Management System Distribution Resource Planning System Order Processing System Forecasting System Finite Scheduling System
TOOLS
Host application development and report writer tools Micro and connectivity tools Computer Based Training Packaged Training Materials Self Study Materials

Its software runs on hardware that includes IBM, Digital Equipment Corporation, Fujitsu, Tandem and ICL, though the traditional emphasis has been on IBM mainframe-based solutions.

D&B Software has developed a strategy to guide the development of products and services to meet short- and long-term customer needs. D&B Software will invest its resources in specific key areas. Product enhancements will focus on increasing the value of existing software for customers in terms of productivity and functionality. Value-added offerings will more fully utilise leading-edge technologies and strategic hardware platforms. These will be a foundation for future architectures, which will encompass open systems and provide consistent global functionality for future products.

In the future, D&B Software will concentrate on developing applications to run under client/server environments since it sees the client/server architecture as the *"correct direction for the future and a significant opportunity"*. Indeed, for the longer term, D&B Software is committed to investing heavily in applications for the client/server environment.

Three product lines are offered for financial and business management: Millennium (M-Series), originally a McCormack & Dodge mainframe product; the E-Series product range, originally an MSA development; and the latest line, SmartStream for the client/server environment, launched in March 1992.

SmartStream may be regarded as the "flagship" of D&B Software and comprises not only application software but also decision support tools. It represents an attempt to move away from paper-based reporting and financial analysis, by offering a single source of access to business information in corporate databases.

SmartStream is a Microsoft Windows-based client/server environment which employs Sybase Inc.'s SYBASE SQL server database. Functions are controlled and supported through the use of intelligent "agents" that make decisions on the user's behalf based on pre-determined criteria. It aims to allow users such as line managers and operating executives to access and analyse easily multi-dimensional views of information at the workstation level in financial, human resource, distribution and manufacturing areas.

D&B Software also offers consultancy, training and customer support services. It divides these activities into:

- **Management Services:** analysis and evaluation of business goals and formation of IS plan.
- **Implementation Services:** provides requirements analysis, functional design, training and system tailoring to assure integration of products into a client organisation.
- **Technical Services:** provides technical expertise in system software, performance training, databases and the development of interfaces and enhancements.
- **Educational Services:** provides comprehensive education and documentation services that cover the life cycle of the system selected by the client.

Company Strategies

(a) Company Direction

The improvement in performance which D&B Software was aiming for in 1992 (mid to high single-digit revenue growth and strong growth in operating income) did not materialise. The company had expected performance to be spurred by:

- Substantial growth in consulting services
- Margin improvements as a result of increased productivity
- D&B Software's first client/server based products introduced in mid-1992

The company's long-term goal is to achieve double-digit growth in operating income, as a result of strong revenue and margin improvement. This is still some way off.

Hank P. Holland, who took over from John Imlay as CEO in January 1993, has stated publicly that D&B Software has two fundamental strategies aimed at increasing value to customers:

- to protect customers' host-based investments
- to bring new technology solutions to market.

The first is no surprise, since a substantial proportion of D&B Software's revenues derive from maintenance/enhancement of existing customer installations. Whilst the company is anxious to promote migration to and sales of its new client/server products, it

realises that its current revenue streams are very much dependent on keeping existing customers happy, reassuring them of continued support and offering them an easy migration/"right-sizing" path.

D&B Software markets itself as a 'software partner' to its clients. It is focusing on researching and developing new technologies, refining and developing existing products and on enhancing its level of support and services.

The company believes that it has four sources of differentiation:

- The use of an enterprise model during product development to map business processes;
- The leveraging of D&B Software's own business expertise for the customer;
- Productivity gains through workflow automation;
- Improved information access through the use of decision support tools, with the ability to integrate information from the D&B Corporation and other sources.

In June 1993 the company created a new post of Senior Vice President, Customer Solutions Management. Robert Cawley (recruited from Technology Solutions Corp., a Chicago-based systems integration company) has been made responsible for communications, business alliances and customer strategy.

(b) Strengths and Weaknesses

D&B Software's strengths can be summarised as:

- Worldwide presence
- Strong customer base
- Established vendor
- Industry expertise

D&B Software has a strong geographic presence. The company operates in 60 countries worldwide.

D&B Software has an enviable customer base. Most of its customers are major corporate organisations and, according to the company, include 75% of the *Fortune* 500 companies.

The company consists of two established vendors that were both market leaders in providing accounting systems throughout the 1970s and 1980s. D&B Software therefore possesses a strong

knowledge of and proven track record in the financial and manufacturing markets where MSA and M&D have both traditionally operated.

The main challenge for D&B Software will be to make the transition successfully from a supplier of mainframe applications to one that can deliver truly open applications. The company's large customer base has been targeted for the sale of client/server technology, and a measure of its ability to compete and deliver successfully in this area will be the retention of its large customers.

(c) Conclusions

D&B Software is a leading supplier of financial and accounting software and of logistics and manufacturing software. The company is active worldwide through its subsidiaries and a number of distributors.

D&B Software is a result of a merger between MSA and M&D, two firms that had similar product offerings. D&B Software has successfully integrated the two operations and has redefined its products to form an integrated suite

While the company's main applications were originally designed for mainframes and midrange systems, its development strategy is now focused firmly on the client/server environment.

D&B Software remains committed to supporting and enhancing its existing product line, but at the same time is offering its client base a new generation of applications.

The company plans to deliver its new products gradually, allowing customers to "right-size" in their own time and is attempting to provide easy migration paths. However, the speed at which customers are prepared to migrate, which in turn depends on the economic and business climates, may well be initially too slow to counterbalance the investment that has been required to develop the new products. D&B Software must be fervently hoping that an upturn in the economy will release funds for migration. Whilst the recession remains it must continue to "milk" its existing mainframe base.

D&B Software's clients are largely major organisations, and it is hoped that these clients will continue to provide the majority of revenues. However, it is expected that the company will increasingly utilise other channels, such as value-added resellers (VARs), to sell to a wider market.

COMPANY PROFILE

EDS

European Headquarters
Carlton House
Ancells Park
Fleet
Hampshire GU13 8UN
United Kingdom

Group Executive - European Operations:
John Bateman
Status: GM subsidiary
Revenue (FYE 31-12-92)
Europe: \$1.4 billion; World: \$8.2 billion.
Number of employees:
Europe - 11,000; World - 70,500

Tel: 44 252 816688
Fax: 41 252 816858

MD: Tom Butler

U.K. Headquarters
4 Roundwood Avenue
Stockley Park
Uxbridge
Middlesex UB11 1BQ
United Kingdom
Tel: 44 81 848 8989
Fax: 44 81 756 0130

The Company

EDS was founded in 1962 and became an independent subsidiary of General Motors in 1984. It is a world leader in the supply of information technology services providing consultancy, systems development, systems integration, systems and process management to almost every market sector.

EDS currently has more than 7,200 clients in over 30 countries worldwide and employs 70,500 staff.

EDS' largest client is General Motors Corporation (GM) and its subsidiaries, which contributed approximately 41% to EDS' 1992 revenue.

EDS and its subsidiaries were acquired by GM in October 1984 for approximately \$2.5 billion.

Through its work for GM, EDS has gained expertise in major systems, strengthened its international presence and enhanced its communications expertise.

**Organisational
Structure**

EDS is currently organised into strategic business units, which include:

- Communications
- International and global industries (international means all countries outside North America)
- Manufacturing and distribution
- Government and defence systems
- Health and benefits
- Financial services
- Insurance services
- Retail and commercial
- Transport and travel
- Energy and petrochemicals

Geographically EDS is organised in four Business Units in Europe: North, Southern, Central and Eastern. Coordination with the Strategic Business Units is effected through the EDS European Board.

EDS offers a broad spectrum of IT services. Its service model is shown in Exhibit A.

The EDS Business Integration Continuum
Goal: Business Performance Improvement
Contract for Value

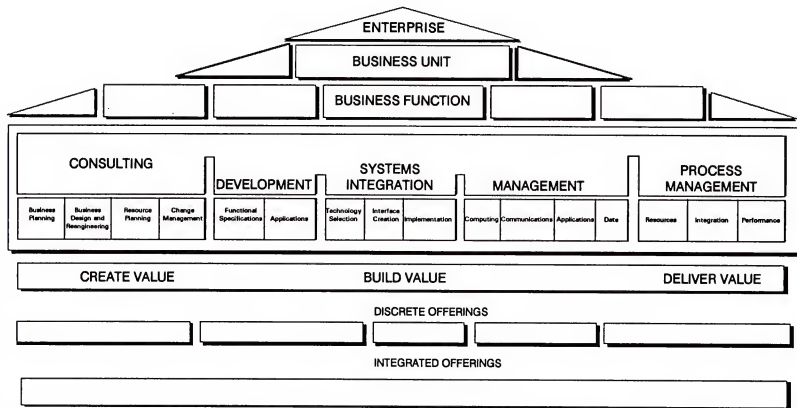


Exhibit A

EDS

INPUT

Recent Acquisitions

In August 1991, EDS acquired SD-Scicon, the British computer services company, and its subsidiaries for \$265.7 million.

SD-Scicon was formed in 1988 by a takeover by SD (Systems Designers) of the far larger Scicon Group, previously owned by BP. SD was originally founded in 1969 and obtained flotation on the stock market in 1982. Scicon started operations in 1960 as part of CEIR (Corporation for Economic and Industrial Research)-U.S.

SD-Scicon offers the following services to an international client base:

- Systems Integration
- Facilities Management
- Consultancy
- Application products

In 1992 EDS renamed the GFI in France as EDS-GFI and SD-Scicon in the U.K. as EDS-Scicon. A 6% staff lay-off was announced by EDS-Scicon.

Additionally EDS gained new customers, new products and entry into the aerospace industry with acquisition of McDonnell Douglas Systems Integration Company (MDSI) and the software distribution business of McDonnell Douglas Information Systems International. With MDSI comes Unigraphics, one of the leading CAD/CAM systems on the market today. Another popular MDSI product is the Graphic Data System (GDS), a CAD application especially suited for large-scale projects.

Key Products and Services

The activities of the company are classified as:

- Consulting Services
- Systems Development
- Systems Integration
- Systems Management
- Process Management.

Consulting Services - EDS evaluates current and prospective customer needs in conjunction with industry trends to offer solutions that may include IT systems, management or work-flow analysis.

Systems Development - EDS designs, develops and installs new information processing systems, or additional features for existing systems, in each case in accordance with customer specifications.

(b) Strengths and Weaknesses

EDS' main strengths can be summarised as:

- Global Presence
- Strong Systems Operations and Systems Integration Skills
- Strong Management Team
- Strong Acquisition Strategy
- Ability to secure large contracts.

EDS' primary strength lies in its geographical presence. The company operates worldwide, has 7,000 customers in 30 countries and has continued to strengthen its global customer base through acquisitions and strategic agreements.

EDS possesses strong Systems Operations and Systems Integration skills, which it has enhanced significantly, particularly the latter, with its recent acquisition of SD-Scicon and its diverse European customer base.

EDS is fortunate in that it possesses a strong management team who can successfully drive company strategies and provide the long-term commitment required. An example of this is the company's target account strategy, where organisations were singled out as prime target accounts capable of contributing significant revenues to EDS. The company invested the resources and time necessary, in some cases years, to secure these targeted organisations as clients.

EDS' management team has a good track record in making successful acquisitions. The company has practiced a growth by acquisition strategy throughout its 30 year life, and is currently more active than ever along those lines. EDS claims to have a very positive attitude to acquired staff, viewing them as an asset, and has a very good track record of exploiting this asset. The company's whole life has been based on this strategy.

EDS has the enviable ability to secure large contracts, particularly in the areas of Systems Integration and Systems Operations. The company is an established vendor in both markets with a reputation for technical expertise. Also the company's GM parentage has enhanced its financial stability, a key asset when tendering for large FM projects.

EDS is viewed as technical experts. The company's focus is on setting itself as a strategic adviser on its clients' IT investments.

Within the last year EDS has become one of the top five Software and Service players in the European market. SD-Scicon was, in the true sense of the word, a 'strategic' acquisition for EDS - strengthening substantially its presence in Europe, a prime target area for growth.

EDS now operates in 17 European countries and has 11,000 employees there. In 1992 it added to its German base by acquiring mbp Software and Systems (570 employees) and IDee.

As well as the need to continue its European expansion, EDS faces a challenge in moving itself away from its image of a technical supplier to its desired position of a 'business process enhancer' improving its customers' business operations through IT.

It has started to position itself explicitly to address the issue with the concept of "co-sourcing", in which strategic opportunities are initially identified by a team of EDS consultants. This is followed by business process re-engineering, application of IT and management of business processes. And the contract, "based on value rather than price," is managed by a team drawn from both EDS and the client.

EDS sees its business advisory role as its differentiator from traditionally technical vendors and processing services companies. The main challenge for the company will be to capitalise on this strategy and build a reputation such as Andersen Consulting or Price Waterhouse as a strategic consulting and technology business.

(c) Conclusions

EDS, through its European subsidiaries, is one of the leading IT services suppliers in Europe, with operations in 17 countries.

EDS in Europe offers the full range of core activities and provides services and products to an international client base. Vertical market groups specialise in particular sectors, which include process and discrete manufacturing, oil and petrochemicals, utilities and transport, and government and defence. Cross-industry groups provide technical consultancy, communications, facilities management, software products and training.

The success of EDS as a manager of IT service businesses can be measured by its 14-year record of increased profitability. And 1992 was another good year.

In 1991, revenues increased 16% to \$7.1 billion with profit before tax reaching \$894 million, an increase of 13% over the previous year. However, a significant portion of this revenue can be attributed to the acquisition of SD-Scicon and McDonnell Douglas Systems Integration.

(d) Strategic Assessment

EDS has strengthened its European presence and expanded its capabilities through its acquisition of SD-Scicon and its subsidiaries. The company now represents a significant competitive threat to the leading European independent vendors.

SD-Scicon has added a number of prestigious European organisations to the EDS client base. Clients include the U.K. Ministry of Defence, British Aerospace Australia Limited and the European Space Agency.

What SD-Scicon brings to EDS is expertise in consulting, systems development and facilities management that neatly complements its traditional skills and significantly improves its ability to serve European customers. EDS can now approach any corporation of any size in any area and provide greater value and competitive advantage.

EDS also broadened its customer base with the acquisition of McDonnell Douglas Systems Integration Company, enabling it to enter the aerospace industry, where the potential for new or expanded business with existing MDSI customers is strong.

The strength of EDS and its future success lies in its ability to form long-term strategic relationships with clients. Continued success over three decades results from the ability to combine a breadth of advanced technical knowledge and skilled large-scale project management with extensive experience in clients' own business sectors and an understanding of their strategic business needs.

COMPANY PROFILE

ERITEL

Pº de la Castellana, 141
Edificio Cuzco IV
28046 Madrid
Spain
Tel: 34 1 348 11 00
Fax: 34 1 579 10 74

President: Javier Monzón
Executive Chairman: Jose María Vilá Solanes
Number of Employees: 1,730
Revenue 1992 Ptas 16,000 million

The Company

Eritel was formed in 1990, the result of a merger between the two Spanish software and services companies, Eritel and Eria.

Eritel has a number of shareholders which are shown in Exhibit A.
Exhibit A

SHAREHOLDERS

SHAREHOLDERS	PERCENT OWNED
CE SELSA-INISEL	53.73%
Telefónica de España	36.56%
BBV	
Banesto	
Central Hispano	{9.71%
Cap Gemini Sogeti	
TOTAL	100%

Eritel achieved 1992 revenues of Ptas 16 billion and employs 1,730 staff.

Eritel divides its business activities into:

- Consultancy
- Systems Integration
- Systems Engineering
- Technical Assistance
- Outsourcing Services
- Multi-media Solutions
- Training

The company focuses on the following vertical markets.

- Public Administration (Government)
- Building
- Defence
- Finance
- Industry and Services
- Health
- Insurance
- Telecommunications
- Transport

Organisational Structure

Exhibit B lists Eritel's main subsidiaries.

Exhibit B

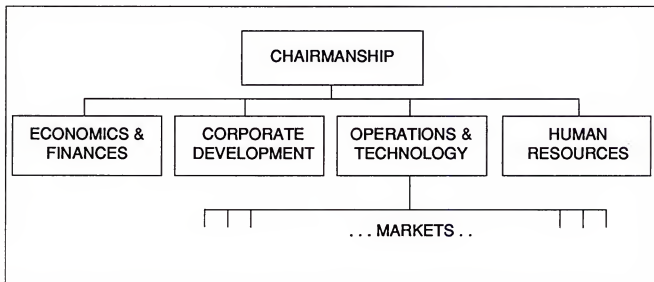
MAIN SUBSIDIARIES	
COMPANY	PERCENT OWNED
Central Informatica	100%
Ibermatica	39%
SADIEL	12.28%

- During 1992 Eritel increased its holding in, and acquired 100% of, Central Informatica, a company focused on software development and technical support services.
- Ibermática specialises in software development and data processing for savings banks.
- SADIEL was founded to encourage computerised development in Andalucía.

Eritel's Organisational Structure is shown in Exhibit C.

Exhibit C

ERITel organisation structure

**Major Recent Projects**

Examples of projects undertaken by Eritel in 1992 include:

- Design, development and implementation of the AMIC, a system for the Olympic Family, commissioned by the Olympic Committee of Barcelona 1992 (COOB'92).
- The system of Electronic Mail for the Autonomous Government of Valencia.
- The public Accounting System for the Department of Finance and Public Credit of Ecuador.
- The System of Authorization for credit cards operations in the Bank of Fomento.
- The system of communications for AVE, the Spanish high speed railway.
- The development of a set of products for public and private health services (MIDHOS, EGIDAS, SISLAB and SIAMAT)
- The establishment of the Clearing Centre for car insurance companies (Project CICOS).

- The integrated satellite system for Telefónica.
- The system for diagnosis and evaluation of Fly Programs for IBERIA.
- Design and development of the system ATLAS for the management and control of the telephonic circuits of Telefónica, and - also for Telefónica - the system for customer service.
- Progress in different markets with implementation of communications platform specifically designed to create EDI (Electronic Data Interchange) systems and offer EDI services.

Key Products and Services

Eritel's current offerings are structured around the following core activities.

Consultancy

This activity is divided into two categories.

- Business function consultancy
- Organisation and technological consultancy.

Systems Integration

Eritel sees Systems Integration as one of its key activities. Its approach is to supply turnkey solutions that are capable of satisfying customer requirements, and to take full responsibility for the project in consultation with the client.

Systems Engineering

Eritel designs, develops and installs applications and information systems across all industry sectors.

Outsourcing Services

Seen by Eritel as the externalisation of the management of client DP activities, by partial or complete sub-contracting of information systems.

Training

Eritel divides its training business into two activities. The first is an advisory service to management on current technologies and their effect on improvement of business management and profitability.

The second is training users and the promotion of technological advances.

Multi-media Solutions

Focused on the design, development and implementation of systems able to handle and integrate voice, text, data and images.

Technologies

1992 Eritel assigned 9% of its turnover to research and development. It has a presence in the main Spanish and European programmes related to IT (ESPRIT, EUREKA, STAR, ENS and AIM.)

Knowledge Engineering:

Systems and solutions where the use of AI tools and techniques allow the solution of problems for which conventional techniques are inadequate. Examples include knowledge-based systems, case-based reasoning (CBR) and neural networks.

Communications:

Primarily aimed at the interconnection of heterogeneous multi-supplier systems.

The main technologies are LAN, WAN, EDI, E-Mail, X.400 and X.500.

Statistical Systems:

Eritel develops specialised products and services for statistical data analysis.

Geographic Information Systems:

Design and development of systems to store and process topological data and to represent it graphically.

Software Engineering and Quality Procedures:

In order to meet its strategic objective to provide high-quality offerings Eritel uses two unique technologies as the basis for its work for clients. These are:

- its own methodology (MEIN II) - selected as one of the bases for the proposed EUROMETHOD

- its own proprietary quality system, which guarantees the successful implementation and certification of software for clients.

Exhibit D

Financial
Information

THREE-YEAR FINANCIAL SUMMARY (PTAS MILLIONS)

	1990	1991	1992
Revenue	16,386	18,565	16,000
Annual growth rate (%)	-	13	-14
Profit	786	803	NA
Annual growth rate (%)	-	2	

Market
Analysis

Exhibit E

1991 MARKET ANALYSIS BY ERITEL-REPORTED ACTIVITY

ACTIVITY	REVENUE (PTAS MILLIONS)	PERCENT
Consultancy	606	3
Data Processing/ Facilities Management	925	5
Hardware and Software products	3,166	17
Systems	13,868	75
TOTAL	18,565	100

Source: Eritel

Exhibit F

1991 MARKET ANALYSIS BY INDUSTRY SECTOR

SECTOR	REVENUE (PTAS MILLIONS)	PERCENT
Finance	2,981	16
Industry	3,118	17
Public Administration	5,453	29
Telecommunications	7,013	38
TOTAL	18,565	100

Source: Eritel

Exhibit G

1992 MARKET ANALYSIS BY INPUT DELIVERY MODE

DELIVERY MODE	REVENUES* (\$ MILLIONS)	PERCENT
Application Software Products	5	4
Turnkey Systems	20	14
Professional Services	95	68
Systems Integration	5	4
Processing Services	5	4
Total Software and Services	130	93
Equipment/Other Revenues	10	7
TOTAL EUROPEAN REVENUES	140	100

*INPUT estimate

Note: Numbers are rounded

Exhibit H

1992 MARKET ANALYSIS BY INPUT INDUSTRY SECTOR

SECTOR	REVENUES* (\$ MILLIONS)	PERCENT
Discrete Manufacturing	10	8
Process Manufacturing	5	4
Utilities	5	4
Telecommunications	50	38
Banking and Finance	20	15
Local Government	10	8
National Government	25	19
Other Industries	5	4
TOTAL SOFTWARE AND SERVICES	130	100

**Company
Strategies**

Eritel has three main goals:

- To ensure top quality and maximum profitability of its service offerings.
- To achieve increased specialisation of its solutions and to offer a wider range of products.
- To expand activities both in Spain and abroad.

Eritel is a leading software and services player in its national market. The company offers a broad range of products and services to its four main industry sectors, finance, industry, public administration and telecommunications. Its objective is to become a "Strategic Ally" to its customers, providing quality services and solutions regardless of technical complexity.

Eritel is particularly strong in the professional services arena, where INPUT estimates it derived 72% of its 1991 revenues.

Eritel aims to focus on developing its systems integration capability and views this activity as strategic in the continued growth of its business.

Eritel recognises the importance of being in the forefront of technological developments, and invested 9% of 1991 revenues in research and development activities. It has also implemented an ambitious training plan for its employees to ensure that staff are well versed on the latest technological advances.

Eritel's main market is the telecommunications sector, which contributes 38% of its revenues. However, a significant portion of this may come from Telefónica de España a major shareholder in Eritel.

Eritel does not have a European presence outside the Spanish market. The main challenge for the company will be to move into other country markets through acquisition or partnerships and manoeuvre itself into a position where it can compete with other vendors which already have a head start in the Pan-European expansion race.

Cap Gemini Sogeti has a minority shareholding in Eritel, so it is conceivable that Eritel will form partnership agreements with some of the CGS companies throughout Europe.

COMPANY PROFILE

GE INFORMATION SERVICES

Via San Gregorio, 34
I-20124 Milan, Italy
Tel: 39 2 667051

Vice President Europe: Giuliano Venturi
Status: Division of General Electric Company
Total Employees: 2,500
Total Revenue, Fiscal Year End 12/31/92:
European Revenues \$235 million (Non-captive)(INPUT estimates)

The Company

GE Information Services offers a portfolio of network-based information services including electronic commerce (EDI electronic messaging and network management), custom industry applications (banking and financial services, retail and trade and transportation, computer hardware and software for example), cross-industry applications (channel management systems and sales and marketing communications systems), network and processing services, systems development and consulting to more than 13,000 clients world-wide. These services are supported by a team of information specialists in 35 countries.

- GEIS was formed in 1979 as General Electric Information Services Company (GEISCO) to consolidate General Electric Company's (GE) MARK II world-wide interactive and remote batch processing services, originally introduced in 1965 under the MARK I name as the first interactive processing service commercially available in the U.S. The organization unified the U.S. operations handled by GE's Information Services Division, with European and Australian operations run by Honeywell. Honeywell retained a 16% interest in GEISCO until January 1972, when GE purchased Honeywell's interest for approximately \$70 million.
- On January 1, 1984, GEISCO once again became an internal component of GE and its legal name became GE Information Services.
- GEIS now reports directly into General Electric as one of the 13 key businesses.

INPUT estimates that GEIS's 1992 European Information Services revenue was approximately \$235 million non-captive (from clients outside the parent GE company).

- The company had more than 13,000 clients by the end of 1991 compared to 10,000 clients in 1990.
- Revenue provided to various units of General Electric Company is estimated at approximately 5% of total revenue.

Effective October 1989, Hellene S Runtagh was appointed President of GEIS, replacing James McNerney Jr. In addition to this, Hellene Runtagh was appointed Vice President and Chief Information Officer of Corporate Information Technology effective October 9th 1992.

GEIS' primary competitors include AT&T Istel, BT Tymnet, IBM IN, Infonet, Sprint International and Reuters.

- In the EDI and electronic mail area GEIS also competes with Sterling Software (Ordernet), MCI, AT&T Easylink and various PTT-provided services.

Organisational Structure

Overall European headquarters are in Milan, Italy. European operations are divided by region:

Northern headquarters in the U.K.

Western headquarters in Paris, which is responsible for Belgium, Luxembourg, France and Monaco.

Central headquarters in Cologne, responsible for Germany, Austria, Switzerland, Denmark, Sweden, Norway and Finland.

Southern headquarters are in Milan, responsible for Italy, Spain, Portugal, Greece and Saudi Arabia.

Many of the offices are established through affiliates, e.g., in Finland this is through Nokia, in Spain Teleinformatica. However, the offices in Italy, the U.K., France and Germany are subsidiaries.

Each country office provides the following functions: sales and marketing, customer services and technical development and support. Each office is responsible for its own revenue and sales function with local personnel represented.

The country office takes the account management role and is therefore the client's point of contact. It is responsible for instructing the offices of other countries on their role in servicing a particular client's needs should they require services in these countries.

The company therefore has a national sales force but has a worldwide organisation to draw on for applications and support requirements. The U.K. holds the majority of the large banking accounts.

Key Products and Services

INPUT estimates that in 1992 GEIS earned \$185 million from network and processing services, \$45 million from professional services and systems operations and the remainder from other activities.

By Network

GEIS offers its clients three delivery systems for its processing/network services as follows:

- The MARK III« Service consists of the following major elements, serving over 8,000 clients world-wide, around half of whom will be based in Europe or will have European operations.
- Foreground Service is the primary offering on the MARK III System, consisting of interactive remote processing on Honeywell/NEC computers. GEIS offers two libraries consisting of over 2,000 software products, a summary of which is found in Exhibit A.

Exhibit A

APPLICATIONS AVAILABLE ON MARK III SERVICE

APPLICATION AREA/PRODUCT NAME	APPLICATION AREA/PRODUCT AREA
OPERATING ENVIRONMENT . HONEYWELL DPS 90/ACOS 1000 8000 PROGRAMMING LANGUAGES SUPPORTED . FORTRAN 77 - PL/1 . COBOL - BASIC DATA MANAGEMENT SOFTWARE . DMSIII . FLEXIMIS . HISAM . SAS . DM IV . REQUEST . SYSTEM 2000 . SITE II . MARK IV . EPICS . DCM . MARKDATA DATA BUSINESS AVAILABLE . MAP (ECONOMETRIC DATABASE) . CURRENCY DATABASE SERVICE . SECURITIES DATABASE SERVICE . VALUELINE . NEMA (NATIONAL ELECTRICAL MFG.) . DEPARTMENT OF COMMERCE (SIC) . FEDERAL TRADE COMMISSION . CICTBASE . PETROLEUM INSTITUTE . DWIGHTS ENERGYDATA . CORPORATE FINANCIAL DATA SERVICE . BUSINESS AND FINANCIAL DATA BANK . COMMODITY FUTURES . AHAM (HOME APPLIANCE MFG) . DOW JONES NEWS/RETRIEVAL . CITIBANK GLOBAL REPORT FINANCIAL APPLICATIONS/TOOLS . LEX 2000 . GENERAL BUSINESS ACCOUNTING . FINANCIAL ANALYSIS FORECASTING . FORECASTING . AUDITING BANKING/CASH MANAGEMENT . GLOBAL RISK MANAGEMENT SYSTEMS . TRADE WATCH . FUNDSNET . LEAPP CHEMICAL COMMUNICATIONS . TELEPHONE CO. OPERATIONS & FINANCE CONSTRUCTION DISTRIBUTION	ELECTRONIC DATA INTERCHANGE . EDI*EXPRESS SYSTEM . SPS CENTRAL ELECTRONIC MAIL . BUSINESS CONNECT . BUSINESSTALK 2000 . QUIK-COMM . QUIKNEWS . X.400 ACCESS ENGINEERING . CIVIL . MECHANICAL . ELECTRICAL AND ELECTRONIC HUMAN RESOURCE MANAGEMENT INSURANCE INVESTMENT RESOURCE MANAGEMENT INVENTORY CONTROL/ORDER SERVICE GRAPHICS AND PLOTTING LINEAR PROGRAMMING MANUFACTURING . INDUSTRIAL ENGINEERING . PLASTIC ENGINEERING . MANUFACTURING MANAGEMENT . NUMERICAL CONTROL . PRODUCTION SCHEDULING . QUALITY CONTROL MARKETING AND SALES MATHEMATICS OPERATIONS RESEARCH AND MODELLING PROJECT PLANNING AND MANAGEMENT SIMULATION MODELING STATISTICAL ANALYSIS AND TRANSPORTATION . MARINE MANAGEMENT . EQUIPMENT MANAGEMENT SYSTEMS - SHIPMENT TRACKING SYSTEM MISCELLANEOUS . GENIE

- Products are developed by GEIS or licensed from major software vendors. These third-party packages are fully supported by GEIS.

. The MARK 3000™ Service is an IBM-compatible companion service to the Honeywell/NEC-based offerings. Remote batch

and interactive processing on large-scale IBM computers is available. Selected applications available on this service are shown in Exhibit B. Usage is split between general business applications and engineering, simulation and statistical analysis applications.

Exhibit B

APPLICATION AREA/PRODUCT NAME	APPLICATION AREA/PRODUCT NAME
OPERATION ENVIRONMENT <ul style="list-style-type: none"> IBM 3081, MVS, TSO, CGS IBM 4381, VM IBM 9000 PROGRAMMING LANGUAGES SUPPORTED <ul style="list-style-type: none"> FORTAN 77 COBOL PL/1 BASIC UTILITY SOFTWARE <ul style="list-style-type: none"> LIBRARIAN PRODUCTIVITY TOOLS <ul style="list-style-type: none"> ACCOLADE DOS/OS CONVERSION PACKAGE ISPF/PDF DATABASE MANAGEMENT <ul style="list-style-type: none"> FOCUS IDMS SQL/DS FINANCIAL APPLICATIONS/TOOLS <ul style="list-style-type: none"> GENERAL ACCOUNTING FINANCIAL PLANNING (PCP - EPS - IPPS) FORECASTING (SIMPLAN) BUDGETING AND MODELING (CPL/TACTIX) GRAPHICS <ul style="list-style-type: none"> TELL-A-GRAPH DISSPLA GDDM STATISTICS <ul style="list-style-type: none"> SAS 	OTHER INFORMATION MANAGEMENT <ul style="list-style-type: none"> OCF OXYCALC MEGACALC SCRIPT/VS WYLBUR PROJECT MANAGEMENT <ul style="list-style-type: none"> PROJACS PROJECT/2 SCIENTIFIC AND ENGINEERING <ul style="list-style-type: none"> SUPERB CIRCUIT ANALYSIS ASTAP ORDER SERVICE <ul style="list-style-type: none"> MANUFACTURING PLASTICS ENGINEERING DISTRIBUTION <ul style="list-style-type: none"> VEHICLE ROUTING VSPX (VEHICLE SCHEDULING) MATHEMATICS <ul style="list-style-type: none"> MPS III MPSX/370 SPSS PLANNING AND MODELING <ul style="list-style-type: none"> SMOP (PRODUCTION SCHEDULING) CSMP III (SIMULATION) DYNAMO III/F (SIMULATION) GPSS V (SIMULATION) KETNET MAGEN (MATRIC GENERATOR) OTHER GE*TUTOR

The MARK 9000SM Service, announced in January 1988, is a bundled offering of IBM MVS/XA operating environment processing, storage and IBM-compatible network services.

The service is targeted to clients whose business requirements include multiple, distributed 9370s, remote access to one 9370, the integration of their 9370 systems with other mainframe systems, or a CICS capability. It can be used for departmental processing: development, prototyping and conversions; in distributed configurations for store-and-forward processing and network switching/management; and as a component in

custom systems for vertical applications, disaster recovery and remote facilities management.

- The MARK 9000 Service is available in Europe and the U.S. GEIS already has several contracts from the U.S., France, Italy and the U.K. Current clients include National Westminster Bank.
- The GEIS Network is the company's world-wide teleprocessing network based on a proprietary packet-switching protocol. It permits multi-site organisations to achieve data transmission to dispersed terminal and host computers around the world with approximately 600 access points in the U.S. and in-country direct access in 35 countries.
- The GEIS network supports asynchronous, IBM-compatible synchronous (Including 3270 BSC, 3270 SNA/SDLC, 2780/3780 BSC, 3770 SNA, LU6.2) and X25 protocols.
- In addition to supporting SNI interconnections among SNA networks, it offers a variety of error-correcting protocols, such as MNP and XMODEM, and it provides 3270 emulation via NET*CONNECT 3270 and Simrue's Simware 3278, SIMPC and MAC3270.

By Application

GEIS services are categorised into the following application areas:

- Electronic Commerce Services
 - Electronic Data Interchange (EDI)
 - Business Communications Products and Services
- Financial Information Services
- Value-Added Network Services
- Managed Network Services
- On-Line Consumer Information Services

Electronic commerce services (EDI, electronic messaging and network management) provide an external, customer-centred orientation for GEIS' value chain and industry focus perspective. Electronic commerce is designed to link an increasing number of business functions and relationships electronically. These services

increase in value as the number and variety of links among customer and overlapping communities expand over time. GE Information Services strategic direction is closely aligned with electronic commerce because it will enable its customers to significantly improve their customer satisfaction and productivity by linking their business community electronically.

Financial Information Services

GE Financial Information Services, a unit of GEIS formed in 1989, supports international network applications for banking and financial institutions. GEIS offers the following products/services which are generally used as part of a distributed processing service:

- ORDEX is an online order routing service, developed for the futures and options industry, linking brokers and investors electronically. Based on UNIX and Windows, ORDEX addresses all the major parts of the trading cycle.
- FUNDSNET Money Transfer Systems is a microcomputer-based, automated money transfer service targeted to corporate treasurers. Through a joint marketing agreement with Racal-Guardata, the Money Transfer Systems includes end-to-end authentication as a means of protecting the money transfer instructions.
- FUNDSNET Balance Reporting System is an automated balance and transaction reporting service used by corporate clients to manage their global cash in an environment of differing time zones and multiple currencies.
- RXM is a network-based management package designed to accommodate a variety of exposure management environments. RXM monitors the Foreign exchange and money markets as well as managing and monitoring exposures in other areas such as securities, commodities and precious metals.
- TRADEWATCH, introduced in September 1989, is a settlement instructions and reporting system for international securities settlement institutions.
- LEX 2000 financial consolidation and reporting software was developed to address the need to consolidate financial information in multi-divisional companies, regardless of size. It resolves differences of disparate accounting systems, foreign currencies, intercompany eliminations, amongst other issues faced by large multinationals.

Electronic Data Interchange Products and Services

EDI Products and services support the electronic processing and transmission between trading partners of standard formatted data for business documents in a variety of public and private formats using different protocols and access methods.

- GEIS' EDI services are used by clients in the trade and transportation manufacturing and retail industries. GEIS' EDI network currently connects almost 13,000 trading partners world-wide, growing 40% annually.
- The EDI EXPRESS System, introduced in November 1985, provides the capabilities for sending, receiving, translating and compliance checking of EDI messages. The system also provides document and/or interchange level auditing and reporting to the user for tracking and monitoring system usage.
- Two levels of service are available, the Interchange Level Service, announced in December 1989, enables customers to select a level of service commensurate with the requirements of their applications.

The service performs control verification and provides tracking reports for interchanges. The Document Level Services, available since 1987, offers network control verification and tracking at both the interchange and document levels.

- EPC*EXPRESS™ Service, introduced in January 1990, permits EDI*EXPRESS clients to initiate electronic payments to their vendors.
- The EDI*PC™ System, introduced in November 1985, is a software package for IBM and compatible microcomputers that allows trading partners to send and receive EDI documents and status reports in a standard format to and from the EDI*EXPRESS System. It can be used as a workstation or as a front-end to an in-house computer for translation. The software licence is \$1,450.
- The EDI*BENCHMARK™ System and a PC product called MAPMATE have been developed to provide EDI access for MVS machines. MAPMATE provides an easy-to-use process for mapping internal file formats to standards.

- The EDI*CENTRAL™ System, introduced in July 1988, is a mainframe software package supporting COBOL 74 for mainframe EDI gateways supporting multiple distributed business applications. It allows the client to send EDI data to and from its in-house application system, and provides EDI translation between application data and EDI standard formats.
- The EDI*TRANSIT™ is an EDI product that provides mapping and translation functionality for UNIX and PC/DOS operating environments.
- The DESIGN*EXPRESS™ System is a family of products that allows engineering/manufacturing design data to be processed and transmitted electronically in several types of document formats. DESIGN*EXPRESS products became commercially available in the U.S. in 1989. Not available in the U.K.
- UPC*EXPRESS Catalog is a service that manages and distributes Universal Product Code (UPC) numbers and their description information for vendors and their retailers. This database of UPC information is integrated with the EDI*EXPRESS System so that vendors and retailers can use EDI to electronically maintain and receive UPC catalog updates.
- GEIS also supports several private and industry association networks, including Catspeed (Caterpillar Tractor Company's private EDI implementation), Haggar Apparel Company's HOP (Haggar Order Processing), LeviLink (Levi-Strauss), PetroExx (the Petroleum Data Exchange System). The Poland Transnet (operated by the Motor Equipment Manufacturers Association, Englewood Cliffs, NJ).

Other EDI-related activities include the following:

- GE Information Services Limited joined with ICL (now 80% owned by Fujitsu of Japan) to form International Network Services Ltd (INS), offering EDI services in the U.K. In 1992 GEIS exercised its option to acquire an additional 10% of the shares bringing GEIS' total interest in INS up to 50%. In February 1989, INS launched its international "Bridge", joining the INS U.K. EDI services to the EDI service provided by GEIS.

- GE Information Services Ltd was selected by CEFIC, the European Council of Chemical Manufacturers' Federations, as the single clearing-house to provide EDI services to the CEFEC EDI trial for the European Chemical Industry.
- In May 1988, GEIS was selected by the Port Authority of New York and New Jersey to provide the EDI*EXPRESS System for the Port's Automated Cargo Expediting system. The system became commercially available in May 1989.
- GEIS has EDI-related alliances with various third parties to sell its services along with their software and equipment. The company currently has agreements with:
 - ACS Network Systems (Concord, CA) for sales to the apparel industry.
 - American Business Computer (Farmington Hill, MI) for the automotive industry.
 - Can/Am Tech (Hamilton, Ontario) for sales and support in the metal industry.
 - Microdynamics (Dallas, TX) for marketing (DESIGN*EXPRESS) to the sewn goods and apparel industry.
 - Supply-Tech (Southfield, MI) for sales to the automotive industry.
- GEIS also provides EDI implementation services, including training, conducting trading partner conferences, follow-up conferences with technical support, developing specialised test procedures, customising documentation, and providing overall project management.

Business Communications Products and Services

GEIS offers a family of products for office communications and automation linking geographically dispersed operations via its world-wide teleprocessing network.

- The BusinessTalk™ System 2000 is an intelligent communications capability designed to process, distribute and retrieve information for members of a geographically dispersed business community via the MARK III Foreground Service through an Apple Macintosh, Windows or DOS IBM PC-compatible computer. BusinessTalk 2000 combines the functions

of textual databases with a key work search, bulletin boards, electronic mail and graphics.

- The QUIK-COMM™ System is a global electronic mailbox service that is designed to integrate multisite, multinational business communications for public and private mail systems. The system accommodates eight languages in addition to English.

Computer Hardware and Software

The GEIS network uses over 6,000 processing and communications computers. Over 400 of these are BULLPMSDs used to handle communications. Large-scale IBM, BULL and NEC processors are concentrated in supercentres in Rockville, Cleveland and Amstelveen, The Netherlands. These consist of:

- Twenty-seven BULL/NEC DPS90/ACOS 1000s and two BULL DPS-9000s operating under GEIS proprietary software for interactive processing, on the MARK III service.
- One IBM 3090, one IBM 3081, one IBM 9121 and one IBM 4381 for interactive and remote batch processing on the MARK 3000 Service.

GEIS's teleprocessing network handles over 400,000 user sessions per day, transmitting over 2,000 million characters of data in and out of the system per hour.

The network uses VSAT satellite links, microwave links, 25 transoceanic undersea cables and 350,000 miles of land-lines.

- Telex Access permits QUIK-COMM users to send messages to and receive messages from Telex addresses during a QUIK-COMM session.
- QUIK-GRAM™ Service enables QUIK-COMM users to deliver electronically produced paper mail messages to virtually anyone with a U.S. or Canadian postal address.
- QUIK-COMM to FAX allows QUIK-COMM messages to be sent directly from a PC to fax machines.
- QUIK-COMM Service Connectors are interface capabilities that permit users of IBM PROFS, DISOSS, DEC All-in-1, Wang OFFICE, Rydex Messaging System (IBM AS/400 or System/3x), 3 + Mail LAN System, CC: Mail and many more LAN Systems to send messages/documents to QUIK-COMM users.

- In October 1989, GEIS announced the commercial availability in the U.S. of X.400 standard access to the QUIK-COMM family of products. In February 1990, GEIS announced an X.400 interconnect to Western Union's EasyLink electronic messaging service.
- In March 1991, GE announced that it had a contract from the Netherlands Ministry of Internal Affairs agency (called GDA) to develop and operate an electronic message handling service for Dutch government and municipal office (some 1,000 offices all told). This X.400-based service follows from a pilot service set up for GDA in 1987.
- GEIS has X.400 service interconnection agreements with the vendors and services listed in Exhibit C.

Exhibit C

VENDORS	COUNTRY	SERVICE
AT&T	US	ATTMAIL
BT Tymnet	US	DIALCOM
IBM IN	GB	IBM 400
MCI	US	MCI
Sprint Int'l (U.S.)	US	TELEMAIL
Sprint Int'l (U.K.)	GB	TMAILUK
Western Union	US	WESTERN
UNION		
Helsinki Tel co	FI	ELISA
Radio Austria	A	ADA 400
Swiss Telecom	CH	ARCOM
BT Plc	GB	GOLD 400
PTT Netherlands	NL	NET 400
Norwegian Telecom	N	TELEMAX
Finnish PTT	FI	MAILNET
Swedish Telecom Int'l	S	TEDE 400
Deutsche Bundespost	D	TELEBOX
Radio Austria	AU	RAC MHS
France Transpac	F	ATLAS 400

Agreements with 12 others are under negotiation.

Value-Added Network Services:

The MARK*NET Service is a value-added network service offered only to clients in the U.S. and Canada through direct access, based on the GEIS Network and local support services in both countries:

- A MARK*NET client who has users outside of North America typically accesses the service via Public Data Network (PDN) access in the local country, interconnected to MARK*NET via

International Record Carrier (IRC) gateways. GEIS provides international access to MARK*NET in this manner from approximately 70 countries.

- MARK*NET Service has all the technical functionality inherent in the GEIS network, including multiple protocol support, protocol, conversion services, error correcting protocols, full network redundancy, a security administration and control systems, and on-line monitoring capabilities.
- Access nodes included dedicated leased line access, private dial access and public dial access.

Managed Network Services

Managed Network Services (MNS), introduced in 1987, is a specialised teleprocessing service that provides client organisations with custom-tailored network and session management to their international information and communications systems. It is sold world-wide and in June 1991 had over 100 clients.

MNS is a single, integrated service that provides the following:

- GEIS consultants, with expertise in applications, networking and client support, prepare tailored proposals designed for specific client requirements.
- Network and session management using MNS Session Manager, a network management teleprocessing application.
- Support in managing the global integration of information by co-ordinating with third-party vendors such as Postal Telephone and Telegraph (PTT) authorities and by offering the client a single world-wide contract.
- World-wide support 24 hours a day, seven days a week once service is in place.

There are currently approximately 100 multinational clients using MNS, approximately 50% of which are Europe-based companies.

On-line Customer Information Services

GENie™ (GE Network for Information Exchange) is an electronic consumer information service (not available in the U.K.) for minicomputer end users.

- GENie permits access to a variety of services, including news and information, financial, travel, shopping, computer games and references, electronic mail and real-time conferencing.
- Services added to GENie during 1989 include Charles Schwab's discount brokerage and investment information services, Newsbytes News Service and the Executive Desk Register of Publicly Held Corporations.
- In October 1989, GEIS announced expanded GEIS service access to 166 cities throughout Canada via Telecom Canada's iNett 2000 gateway service.
- First marketed in October 1985, GENie now has 350,000 users throughout the U.S. and Canada and in 20 cities in Japan.
- By June 1991, it was available in Europe in Austria, Germany and Switzerland.

Other network-related announcements include the following:

- In June 1989, GEIS signed a joint venture agreement with STET, the telecommunications and electronics holding company of the Italian industrial conglomerate IRI.
 - Under the agreement, STET acquired a 40% interest in GEIS Italy, GEIS's wholly-owned subsidiary in Italy. The company will be operated as a joint venture of STET and GEIS to provide value-added network services in Italy.

Professional services provided by GEIS systems development are consulting, training and documentation services.

Geographic Markets

GEIS products and services are offered through approximately 50 U.S. offices and offices in 34 countries, with global support and access provided by distributors, affiliates, or private data networks in 60 additional countries.

- U.S. regional offices are located in New York City, Atlanta, Chicago and San Francisco.
- International offices are located in Australia, Austria, Belgium, Canada, France, Germany, Hong Kong, Iceland, Italy, The Netherlands, Norway, Singapore, Spain, Sweden, Switzerland, and the U.K.

Software Development Centres are located in Rockville (MD), Nashville (TN) and Dublin (Ireland).

GEIS's network provides clients with local dial-up services in 750 cities in 35 countries world-wide and is available 24 hours a day, seven days a week, 365 days a year. Coverage is extended to an additional 75 countries by interconnections with public data network and International record carriers.

Financial Information

As a division of General Electric Company, GE Information Services does not describe its financials separately.

Accordingly, a five-year financial summary for the GE group is shown in Exhibit D and a summary for GE Technical Products and Services, into which GEIS is categorised, is shown in Exhibit E.

Exhibit D

**FIVE-YEAR FINANCIAL SUMMARY FYE 31-12 (\$ MILLIONS)
(GE CONSOLIDATED GROUP REVENUES - WORLDWIDE)**

	1988	1989	1990	1991	1992
Revenues	44,652	49,135	52,619	54,629	57,073
Annual Growth Rate (%)		10%	7%	4%	4%
Operating Profit	4,096	5,021	5,485	5,726	6,273
Annual Growth Rate (%)		23%	9%	4%	10%

Exhibit E

**FIVE-YEAR FINANCIAL SUMMARY FYE 31-12 (\$ MILLIONS)
(TECHNICAL PRODUCTS AND SERVICES CATEGORY - WORLDWIDE)**

	1988	1989	1990	1991	1992
Revenues	3,956	4,049	4,259	4,686	4,674
Annual Growth Rate (%)		2%	5%	10%	0%
Operating Profit	443	538	538	693	912
Annual Growth Rate (%)		21%	0%	29%	32%

Exhibit F

1992 MARKET ANALYSIS BY COUNTRY
EUROPEAN INFORMATION SERVICES

COUNTRY	REVENUES* (\$ MILLIONS)	PERCENT
France	35	15
Germany	15	6
U.K.	70	30
Italy	30	13
Netherlands	2	1
Belgium/Lux'	4	2
Spain	49	21
Switzerland	5	2
Austria	2	1
Sweden	7	3
Denmark	4	2
Norway	4	2
Finland	2	1
Ireland	2	1
Portugal	7	3
Eastern Europe	1	0
TOTAL INFORMATION SERVICES	235	100

Note: Numbers are rounded

* INPUT estimates

Exhibit G

1992 MARKET ANALYSIS BY INPUT DELIVERY MODE
EUROPEAN INFORMATION SERVICES

DELIVERY MODE	REVENUES* (\$ MILLIONS)	PERCENT
Professional Services	10	4
Systems Operations	35	15
Network Services	105	45
Processing Services	80	34
Total Software and Services	230	98
Equipment/Other Revenues	5	2
TOTAL EUROPEAN REVENUES	235	100

* INPUT estimates

Exhibit H

1992 MARKET ANALYSIS BY INDUSTRY SECTOR
EUROPEAN SOFTWARE AND SERVICES

INDUSTRY SECTOR	REVENUES* (\$ MILLIONS)	PERCENT
Discrete Manufacturing	60	26
Process Manufacturing	25	11
Transportation	5	2
Utilities	5	2
Telecommunications	5	2
Retail Distribution	5	2
Wholesale Distribution	5	2
Banking and Finance	60	26
Insurance	10	4
Health care	5	2
Local Government	5	2
National Government	25	11
Business Services	5	2
Other Industries	5	2
TOTAL SOFTWARE AND SERVICES	230	100

*INPUT estimates

Note: Numbers are rounded

Company
Strategies

Company Direction

GE Information Services objectives are:

- To provide a comprehensive range of services, to create and support information systems by deploying the appropriate telecommunications, processing and software technologies and thereby:
 - secure long-term, evolving service business through a close relationship with the client company.

Its overall strategy is to provide highly customised systems through the exploitation of the base enabling technologies such as EDI and messaging services. The company aims to offer a 'complete service deployment function' with the use of third-party services where necessary.

An entry-level approach is taken through integrated messaging services, i.e., the bulletin boards, databases, EDI, X.400/X.500 and business messaging services. The company is taking the 'electronic commerce' approach through the integrated sales of these services, rather than simple service sales.

At a higher level the approach is to focus on functional applications and specific targeted vertical industry sectors.

The company is concentrating on a change of focus from processing the other network services to consultancy. Currently, however, INPUT estimates that only 4% of the company's revenue is generated through professional services. Additionally, the target markets which are to be focused on are:

- Transport
- Retail
- Banking and Finance.

GEIS is particularly cultivating a consultative approach to clients with the ultimate goal of being recognised as major systems integration vendors. One aim to facilitate this is to develop and strengthen partnership relationships. Partnerships are being nurtured through the establishment of joint development projects as well as service provider/client relationships.

Strengths and Weaknesses

GE Information Services' main strengths can be summarised as follows:

- Worldwide Presence
- Strong Parent Company
- Networking Expertise
- Industry Expertise (i.e., Banking and Finance)
- Large Customer Base.

The greatest strength of GE Information Services as an international data carrier is its strong global presence. Such a presence is becoming critical to success in the international network services market. Customers who must manage multinational networks increasingly demand support in and not just access to and from, the countries where they maintain computer installations.

Another strength of GE Information Services is its ownership. It is a component, and thus has the financial backing, of General Electric Company (GE). GE is one of the world's largest corporations, with 1991 revenues in excess of \$600 billion. Apart from being major clients of the company's services, GE has also been operational in GEIS' expansion with Eastern Europe. The

network now has connections into Leipzig, Dresden and East Berlin with an access mode in Prague.

GE Information Services has two super centre teleprocessing centres in the U.S., complemented by a supercentre in Amsterdam. This base helps make the company one of the dominant forces in the managed network services market and a major European vendor of network applications for banking and finance.

GE Information Services has particular expertise in providing services to the Banking and Finance sectors. It offers a number of products and services through its Financial Information Services unit. Set up in 1989, GE Financial Information Services supports international network applications for bank and financial institutions. Product offerings range from a system for money transfer to a settlement instructions and reporting system.

The company has an impressive client base with over 13,000 clients, worldwide. The majority of these clients are multinational companies and organisations in the banking and finance, retail, transportation and information provision sectors.

GEIS is very well established internationally with approximately 50% of its revenue derived from outside the U.S. INPUT estimates in 1991 that the revenue in Europe itself totalled \$235 million. The company plans to continue to favour growth organically rather than through acquisition.

The main challenge for GEIS is to increase skills and resources sufficiently to meet its goal of becoming a total solutions provider.

One way of enhancing its service range and improving its vertical expertise would be to acquire a few niche companies. However, as mentioned above, GEIS is not planning any acquisitions in the foreseeable future.

Conclusions

GE Information Services integrates its networking, processing and software application skills to deliver customised information solutions for customers worldwide. It operates the world's largest commercially available teleprocessing network and is independent of computer manufacturers.

GE Information Systems is a major European vendor of network applications with particular emphasis on banking and finance. Some applications exist as "core" products to service areas of specific client interests.

Other applications are developed for clients on a custom built basis.

The company aims to control the distribution of software within an organisation, transfer data between micros and mainframes, and most significantly, to do this on a global network backbone. GEIS customers can use GEIS's own network-based Bull/NEC computing service, as well as an IBM compatible network-based service operating on IBM 3090, 3081 and 4381 platforms and running under MVS/XA and VM/SP HPO operating systems.

The company is concentrating on functional processes as it accepts that it cannot add value in all market sectors. Functional areas include customer support, sales and marketing, and finance. These neutral functions are designed to apply to most organisations irrespective of their industry sectors to enable the company to enter markets where it has no specific industry expertise and therefore to broaden its customer base.

The concentration on vertical industries is to facilitate the provision of complete services for these particular industries, rather than attempting to be in a position to offer everything in every industry sector.

Although currently 30% of the company's revenue is generated through banking and finance, the majority of this revenue is estimated to derive from processing services rather than network applications services. The company does, however, have the opportunity to leverage business from these processing services customers. Concerning transport and retail however, INPUT estimates that in total GEIS generates little of its revenue through these customers. The company does, however, have connections to these industries through INS, which has a very strong customer base, particularly in the U.K. retail market, through its EDI service.

COMPANY PROFILE

GROUPE AXIME

137 Bd Voltaire
75012 Paris
France
Tel: 33 1 40 90 30 00
Fax: 33 1 43 56 26 02

President: Bernard Bourigeaud
Number of Employees: 2,700
Revenue (FYE 30-06-93) Budgeted FF1.9 billion

The Company

The Axime Group was founded in 1990, the result of the merger between the French companies FITB, Segin and Sodinforg.

With revenues of FF2.16 in 1991/2 and budgeted revenues of FF1.9 billion in 1992/3, Axime is the third largest software and services company in France. It is the market leader in the banking, finance and insurance sectors in France.

Its shares are quoted on the "second marchi," the French unlisted securities market.

Financial Information

Exhibit A

INPUT LIBRARY

THREE-YEAR FINANCIAL SUMMARY (FYE 30-6) FF BILLIONS

	1990/1	1991/2	1992/3
REVENUE	2.1	2.2	*1.9
ANNUAL GROWTH RATE %	N/A	< 1%	(1%)

Source: Axime * Budgeted revenue

Note: Axime was founded in 1990. Accordingly, the first reported accounts for the group are at 30-6-90. Exhibit B shows the revenues for FITB, Segin and Sodinforg before the merger.

Exhibit B

PRE-MERGER REVENUES

COMPANY	1989 REVENUE	EMPLOYEES
FITB	704	1,400
SEGIN	520	1,100
SODINFORG	545	1,200

Source: Axime

Exhibit C

SHAREHOLDERS

SHAREHOLDERS	PERCENT
Paribas - CREDIT du Nord	35.24
Banexi (BNP)	4.02
DEFI	10.86
Groupe g�n�rale des eaux	25.18
Public	24.70

Source: Axime

Market Analysis

Exhibit D shows the breakdown of Axime's revenues by industry sector.

Exhibit D

ESTIMATED REVENUES BY INDUSTRY SECTOR, AXIME, 1992

	REVENUES (\$ MILLIONS)	SHARE (%)
Discrete Manufacturing	24	6
Process Manufacturing	12	3
Transportation	17	4
Utilities	0	0
Telecommunications	40	10
Retail Distribution	12	3
Wholesale Distribution	12	3
Banking and Finance	202	49
Insurance	61	15
National Government	7	2
Business Services	16	4
Systems Software Products	8	2
Total Software and Services	411	100

Axime and INPUT estimates

Exhibit E provides a breakdown of Axime's revenues by INPUT delivery mode.

Exhibit E

ESTIMATED REVENUES BY DELIVERY MODE, AXIME, 1992

DELIVERY MODE	REVENUES (\$ MILLIONS)	SHARE (%)
Systems Software Products	8	2
Application Software Products	12	3
Turnkey Systems	58	14
Professional Services	164	40
Systems Integration	24	6
Systems Operations	17	4
Network Services	13	3
Processing Services	115	28
Total Software and Services	411	100
Total European Revenues	411	100

INPUT Estimated software and service revenues

Exhibit F

ESTIMATED REVENUES BY COUNTRY, AXIME, 1992

COUNTRY	REVENUES (\$ MILLIONS)	SHARE (%)
France	395	96
Germany	5	1
Belgium/Lux'	3	1
Spain	7	2
Total Information Services	411	100

INPUT Estimated software and service revenues

Organisational Structure

The company is currently organised into the following business areas:

- **Data Processing and Facilities Management** -The Axime Services operation, reporting to Jean-Luc Lenart, provides bank/finance processing, management of payment methods, telematics, Facilities Management and VANs. It consists of Segin, SITB/Ageris, FLOW and ATM.
- **Development & Systems Integration** -The Axime IIS operation provides software, systems integration, consulting, development, software packages for finance, support and training. It includes Axime Intigration de Systhmes, under Jean-Paul Rossiensky, and Axime Inginierie, under Charles Chevalier.
- **Direct Marketing Logistics** -This operation consists of Altek and is run by Pascal Bono. It offers database management, data trading, printing and routing services.
- Groupe AXIME also has an *international* division and operates the following companies:
 - ODS (Spain)
 - ODS (Portugal)
 - Axime (Belgium)
 - Axime GmbH (Germany)
 - Segin Benelux
 - Segin Italia (Italy).

Recent Major Projects

Exhibit G shows examples of clients for whom Axime has carried out major projects.

Exhibit G

MAJOR CLIENT PROJECTS, AXIME

Data Processing

- Baring Securities
- CAIXADE CATALUNYA

Audiotex

- La Poste
- CCS Banque

Systems Integration

- Crédit Agricole
- BNP
- Paribas
- Societe Générale

Key Products
and Services

1. Processing and Value Added Network Services

Processing:

- Axime Processing services are structured around the following areas of activity:
- Logging and processing of bank cards. Axime has two processing centres which handle over 330 million transactions a year.
- Delivery, installation and maintenance of electronic payment terminals. (45,000 maintained.)
- Automatic banking terminal/cash dispenser management and payment authorisation.
- Cheque and bank giro transfer processing. The company handles over 100 million transactions per year.
- Clearing: The company carries out daily processing of regional clearing operations in Lille and Bordeaux for the Banque de France.

Telematics:

Axime has a multimedia information retrieval centre from which it offers a number of services. The company provides audiotex and videotex applications to the banking and insurance, communications, distribution, manufacturing, publishing and audit service sectors.

The company claims to have the first European private home and office information network using standard protocols, accessible from Germany, Belgium, Italy, Great Britain, Portugal, Switzerland, Spain and the Netherlands.

Axime also provides TELEROUTE, an EDI service used by 20,000 road haulage companies.

2. Facilities Management

Axime's Facilities Management operation is primarily focussed on the industry sectors where the company has specialised with its other service offerings, mainly banking and finance, manufacturing and distribution.

3. Software Engineering and Systems Integration

Axime acts as partner to its clients by offering a range of services aiming to provide companies with optimum information systems. The group installs equipment, integrates systems and provides consultancy, network related services and maintenance. The company is using its SI expertise in the establishment of SIMON (Système d'Information Monétique National - national plastic money information system) for the Crédit Agricole. SIMON will be one of the largest interbank networks in the world.

4. Software Products

Axime's software products are divided into two main groups:

Banking and Financial: Solutions to manage all banking and stock market operations.

Systems and Networks: Solutions to automate and ensure integrity of data interchange between machines, applications and sites of one or more companies.

5. Training

Axime offers a wide range of training courses - 17 of which are approved by the Fonds d'Assurance Formation Ingénierie Etudes Conseil (FAFIEC).

6. Direct Marketing

Axime covers all the logistic requirements of telephone or catalogue sales and direct mail operations through its direct marketing operation, Altek.

Company Direction

Axime intends to expand geographically both in France and in other countries in Europe by developing its activities on an international level and its partnership agreements in certain sectors.

The strategic objectives of Axime can be summarised as follows:

- To remain the French leader of specialised services within the financial market (banking, finance and electronic transfer of payment) and telematique, in terms of revenues and number of employees.
- To be among the market leaders in the areas of software development and direct marketing.
- To offer a wide and competitive range of products and services.
- To expand through Europe.

Axime's services mostly address the banking and insurance, communications, distribution and manufacturing sectors. The company is particularly strong in the areas of Electronic Funds Transfer, Data Communications and Direct Marketing.

Axime claims to be the French leader in provision of software engineering services to the banking sector.

Currently, Axime does not have a significant presence outside France; only 4% of 1992 reported revenues come from subsidiaries in Spain, Belgium, Germany and Italy.

How successful Axime will be in expanding outside of France depends on how quickly and effectively it can increase revenues in the countries where it already has a presence, and on its ability to form working partnerships with other European vendors and distributors, particularly in the finance sector where it is strongest.

COMPANY PROFILE

GSI (GENERALE DE SERVICE INFORMATIQUE)

25 boulevard de l'Amiral Bruix
75782 Paris Cedex 16
France

Tel: 33 1 45 02 74 75
Fax: 33 1 45 00 59 43

President: Jacques Raiman
Directeur General: Jacques Bentz
Number of Employees: 3,616
Revenue (FYE 31-12-92): FF 2,573 million

The Company

GSI was created in 1971 by CGE (Compagnie Générale d'Electricité). It subsequently became a subsidiary of Alcatel-Electronique (part of the CGE group).

In November 1987, the employees of GSI took control of 70% of the shares of the company. More than half of the employees of GSI are now shareholders.

GSI operates in 14 countries in Europe, North America and Asia.

Its revenue sources are categorised as shown in Exhibits A and B.

Exhibit A

REVENUE BY APPLICATION

Pay-roll/Human Resources	30%
Logistics/Operations	35%
Banking	9%
Tourism/Specialist	26%

Source: GSI

Exhibit B

REVENUE BY SERVICE TYPE

Outsourcing/Application Management	54%
Product related	27%
Consulting/Integration/Development	19%

Source: GSI

GSI's major shareholders are listed in Exhibit C.

Exhibit C

SHAREHOLDERS (31-12-1991)	
SHAREHOLDERS	% OWNED
GSI-Partners	59.94
GAN	12.36
BNP-Banexi Banque Indosuez Charterhouse	10.66
Initiative & Finance	10.66
Apax Partners et Cie	3.13
Cie Financiere de Rothschild	2.13
Others	1.12

Source: GSI

GSI has a number of French and foreign subsidiaries which are listed in Exhibits D and E.

Exhibit D

FRENCH SUBSIDIARIES	%Owned
Générale de Service Informatique	
99 GSI Division des Banques S.A.	99
GSI Ingénierie et Service S.A.	99
G.S. Informatique S.A.	99
GSI Transport Tourisme S.A.	59
GSI Finances S.A.	99
GSI Entreprise - Centre Français de Recherche Opérationnelle (CFRO) S.A.	99
GSI Télématic S.A.	99
GSI Ressources Humaines Progiciels S.A.	99
GSI Tecsi S.A.	69
GSI Services (a grouping of certain subsidiaries) Générale de Service S.A.R.L	99
GSI Vidéographie S.A.	49
GSI ASCII S.A.	99
GSI Motor Trade S.A.	99
GSI Erli S.A.	69
GSI Sceta Informatique Transport S.A.	50
Sesamtel GSI S.A.	57
GSI Contact S.A.	100
GSI TPI S.A.	51
Navitel S.A.	29
GSI Distribution S.A.	99
GSI Systèmes S.A.	99
GSA G.I.E.	48
GSI Ami S.A.	99

Exhibit E

FOREIGN SUBSIDIARIES	% Owned
GSI International (Belgium) S.A.	99
GSI Travel and Transportation Belgium S.A.	59
GSI U.K. Ltd.	99
GSI Travel and Transportation U.K. Ltd.	59
GSI Resource U.K. Ltd.	99
GSI Italia SpA	99
GSI Industria (Italy) Srl	99
GSI Datel (Germany) GmbH	94
Danet (Germany) GmbH	57
Danet I.S. (Germany) GmbH	43
GSI Autocomp (Germany) GmbH	94
GSI Transport & Touristik (Germany) GmbH	59
GSI Suisse S.A.	99
GSI Nederland B.V.	99
GSI Travel and Transportation Nederland B.V.	59
GSI U.S.A. Inc.	99
Transcomm Data System (U.S.) Inc.	99
GSI Danet Inc. (U.S.) Inc.	57
Seresco (Spain), S.A.	99
Tecsidel (Spain) S.A.	79
GSI Transporte y Turismo (Spain) S.A.	59
GSI Incorporated System (Canada) Inc.	99
GSI Transport Tourisme Suisse S.A.	59
GSI Ucoms and its subsidiaries (Netherlands) B.V.	59
GSI Weber und Partner (Germany) GmbH	52
GSI Information Systems Singapore PTE Ltd.	99
Lammert-Paisy (Germany) GmbH	94
GSI Softmark (Germany) GmbH	94

Exhibits F and G provide breakdowns of employees by country and company activity.

Exhibit F

1992 EMPLOYEE ANALYSIS BY COUNTRY

Country	Percent
Belgium	1.8
France	60.8
Germany	10.7
Italy	2.1
Netherlands	2.4
Singapore	N/A
Spain	9.1
Switzerland	1.4
U.K.	6.3
U.S./Canada	5.4

Source: GSI

Exhibit G

1992 EMPLOYEE ANALYSIS BY ACTIVITY

Percent	Activity
23.3	Pay-roll and Human Resource
Management	
14.6	Business Management
5.9	Motor Trade
12.7	Travel and Transportation
17.0	Advanced Technologies
12.8	Outsourcing
7.3	Telematics
3.5	Headquarters
2.9	Other

Source: GSI

Acquisition History

GSI has made a number of acquisitions increasing its activity world-wide.

- The company acquired 59% of GSI-Ucoms in the Netherlands and 45% of GSI Weber and Partner in Germany, adding depth to GSI's transportation offerings and expanding its activity into Eastern Europe.
- In 1991 the company's activity expanded in North America through the acquisition of IMI System's warehouse management activity (Warehouse Management Systems).
- In October 1991 GSI acquired Lammert, a leading German payroll and personnel management company with Paisy software.
- GSI also made an acquisition in France, namely GSI Ami, a payroll management company.

- GSI acquired SITB - with 150 bank pay-roll clients - from Axime

Key Products and Services

GSI specialises in the following product groups and business sectors:

- (1) Pay-roll and Human Resource Management
- (2) Business Management
- (3) Motor Trade
- (4) Travel and Transportation
- (5) Advanced Technologies
- (6) Outsourcing
- (7) Banking.

(1) Pay-roll and Human Resource Management

This sector offers complete solutions built around packages and computing services to meet personnel management needs in:

- Time Management
- Pay-roll
- Personnel Administration
- Human Resource Management. .

By marketing the same line of products Europe-wide, GSI offers compatible multinational information systems.

GSI is represented in Belgium, Canada, France, Germany, Italy, Spain, Switzerland and the U.K., where its services are used by 8,200 organisations.

Products:

- *ZADIG, G-XP, CLIPPER-XP, PAPA-XP*: Software products for pay-roll and personnel management on IBM mainframes, IBM AS/400, Digital and Bull.
- *RESOURCE, KHRONOS-XP, PAYAMI*: Software products for human resource and time management on micro-computers.
- *ZADIG-MX, ZADIG-GP, ZADIG-SX, PAYAMI*: Total service solutions for pay-roll and personnel management.

With the 1991 acquisition of Lammert, GSI now offers the Paisy pay-roll product, used by 1,200 medium to large organisations in Germany. Paisy has also been adopted by approximately 400 organisations operating in eastern Germany.

(2) Business Management

GSI's business management activities are split into three components:

- Distribution management
- Industrial management
- Financial management.

GSI's Business Management activity provides software for production, distribution, accounting and financial control. International development continues with the opening of a branch in Singapore to market Tolas Distribution software in Southeast Asia, and with work under way at new locations in the Netherlands and in Germany.

(Note: GSI has a partnership with Digital for the Tolas Distribution product, for which Digital chose to manage its own European logistics).

TOLAS DISTRIBUTION: GSI has installed this product throughout Europe and the U.S. In 1990, a contract to install information systems for the world logistics facility for Apple Computer, Inc. further reinforced GSI's international capability.

In 1991 GSI signed contracts with Leica, Lever Europe, Philips Consumer Electronics and Vickers.

ACCOUNTING AND FINANCIAL MANAGEMENT: Provides systems engineering services and software packages for building information systems for large and medium-sized companies.

TOLAS FINANCE: This is a software package for IBM large and medium-scale systems (i.e., for 3090 and AS/400 architectures). New clients in 1991 included Leroy Somer, Samaritaine, Technip and Zurich Assurances.

TOLAS PRODUCTION: GSI was the first company in France to offer a "just-in-time" module for computerised production control.

In 1991 the product range for manufacturing was extended by a Unix version of Sofia - for shopfloor planning, and by Tolas Production Open, characterised by its independence from equipment platforms and database management systems.

GSI's world-wide presence in France, Belgium, U.K., U.S., Switzerland and Spain (via a distribution contract with Alcatel Sistemas de Informacion SA) has been increased by new sites in

Italy and Singapore in 1990. GSI acquired a warehouse management system from IMI systems in 1991.

(3) Motor Trade

This area provides sales information systems for automobile manufacturers and importers, fully integrated management for dealers, and information exchange between a manufacturer and his network.

Motor trade activity is organised around three areas of competence:

- DMS (Dealer Management Systems) offers an integrated management system for agencies and dealerships. GSI launched a new version of this product in 1992.
- MSS (Marketing and Sales Services) maintains and manages data banks by industry sector for automobile makers who wish to use their networks as the optimum means to win and retain customers. In 1991, GSI signed a contract with Citroën for this service.
- DDS (Data Distribution Services) supplies data to motor industry network users on such items as required repair lead times and the prices of spare parts. The Menu Pricing Service (MPS) combines all input needed to establish an estimate, enabling dealers and agents to give customers instant, accurate and detailed cost information on repairs. SEAT became a user of this service in 1991.

GSI's network is linked to over 8,000 dealers in eight European countries.

(4) Travel and Transportation

GSI provides information and communication systems for freight carriers and their customers. Areas of expertise are EDI services and links between air freight reservation systems. GSI Travel and Transportation is organised around three main activities:

- Transportation
- Travel
- Clearing.

Transportation

GSI has strengthened its position with the acquisitions of the Dutch company UCOMS, which specializes in the management of road,

air and maritime carriers, and the German company Weber und Partner, a supplier of a micro-computer integrated management system for freight haulers. GSI has a contract for the development and operation of Transponet, an EDI service linking European carriers and their users.

EDI services for Bosch and Unitrans are also being developed by GSI.

Travel

In 1990, the GSI Travel division was named prime contractor for the Eurotop project (the development and distribution of electronic brochures for tour operators). The division was also chosen to head up development of Ulysse, a tourist information database, in partnership with the International Federation of Automobile Clubs, GMF and IBM.

Clearing

In 1990 the clearing division won the contract to design a car rental clearing system between travel agents and Avis, Budget, Europcar and Hertz. The agreement will ultimately apply to 15 countries across Europe.

(5) Advanced Technologies

This division has four distinct units:

- GSI-Tecsi (France)
- GSI-Erli (France)
- GSI-Danet (Germany)
- GSI-Tecsidel (Spain).

The 630 engineers and consultants in the division concentrate on four areas:

- Information Systems Architecture
- Telecommunications
- Real Time Intelligence
- Artificial Intelligence.

GSI provides high-level consulting in all of these areas as well as systems integration work and expert systems.

Telecommunications and natural language specialists worked closely with GSI Travel and Transportation to develop the EUROTOP and ULYSSE software - see above under (4).

In 1990, the expert systems and natural language activities were grouped together in GSI-Erli, placing GSI among the top ranking European companies in artificial intelligence applications.

In 1991, GSI-Erli was awarded contracts by Aerospatiale and INSEE.

In Germany, GSI-Danet claims a leadership position in advanced technology for telecommunications. Its OSI product OSITEL/400 was selected as the X.400 reference installation by the European Open Systems Test Consortium (OSTC) which is used to verify the equivalence of the different conformance testing laboratories.

A consortium of four major German banks has asked GSI-Danet to undertake a study to plan and design a nation-wide telecommunication network that would link more than 8,000 branch offices.

(7) Outsourcing

GSI offers users a total systems engineering facility and service linked to the design and operation of their information system and tailored to their IS policy.

In 1986, GSI installed a network linking together the French government's foreign-based export offices.

The French National Education Ministry asked GSI to create **Edutel**, an internal electronic mail system, with a videotex service centre to transmit news and data to teachers, parents and students. Edutel is currently one of the world's largest videotex service centres.

GSI-Banque has been working on a number of projects with two French banks, Compagnie Financiere de Suez and the Banque Nationale de Paris (BNP).

GSI won the Euro Disneyland facilities management contract in 1989.

(7) Banking

GSI offers to satisfy all the needs of the banking sector from systems design to installation and operation. GSI has also developed an offer of outsourcing systems for the banking industry. Built around Archerys software, which GSI distributes through an agreement with the American specialist banking software company

Systematics, it provides commercial banks with a complete, integrated solution.

GSI has signed an exclusive partnership agreement with Systematics. Products, to which it has access as a result, cover mutual funds and private banking management. GSI claims to have 25% of the employee savings and pension fund management market in France.

Exhibit H

**Financial
Information**

FIVE-YEAR FINANCIAL SUMMARY (FYE 31-12) (FF MILLIONS)

YEAR	1988	1989	1990	1991	1992
Revenues	1,566	1,768	2,044	2,385	2,573
Annual Growth Rate (%)	13	13	16	17	8
Profit before Taxes	92.7	121.2	136.5	164.1	148.9
Profit after Taxes	62.2	79.5	92.8	96.0	84.8
Average number of employees	2,528	2,950	3,302	3,616	

Source: GSI

Exhibit I

KEY FINANCIAL RATIOS

YEAR	1988	1989	1990	1991	1992
Return on sales (%)	5.9	6.9	6.7	6.9	5.7
Return on capital Employed (%)	-	-	46.7	42.2	45
Revenues per employee (FF 000's)	-	699	693	722	711

Source: GSI

Note: Numbers are rounded

Market Analysis

Exhibit J

1992 MARKET ANALYSIS BY ACTIVITY

ACTIVITY	REVENUE (FF MILLIONS)	PERCENT
Pay-roll and Personnel Management	760	29.5
Business Management	373	14.5
Motor Trade	182	7.1
Travel and Transportation	251	9.8
Advanced Technologies	384	14.9
Outsourcing/Application development	623	24.2
TOTAL	2,573	100

Source: GSI

Exhibit K

1992 MARKET ANALYSIS BY GEOGRAPHIC AREA

GEOGRAPHIC AREA	REVENUE (FF MILLIONS)	PERCENT
France	1,709	66.4
Germany	326	12.7
United Kingdom	105	4.1
Spain	174	6.8
Switzerland	50	1.9
The U.S. and Canada	85	3.3
Italy	42	1.6
Belgium	36	1.4
Netherlands	46	1.8
TOTAL	2,573	100

Source: GSI

Exhibit L

1992 MARKET ANALYSIS BY INDUSTRY SECTOR, EUROPE, GSI

INDUSTRY SECTOR	REVENUES (\$ MILLIONS)	SHARE (%)
Discrete Manufacturing	24	5
Transportation	47	10
Retail Distribution	47	10
Wholesale Distribution	118	25
Banking and Finance	24	5
Business Services	47	10
Cross-Industry Sectors:		
Accounting	24	5
Human Resources	95	20
Office Systems	47	10
TOTAL SOFTWARE AND SERVICES	473	100

Exhibit M

1992 MARKET ANALYSIS BY INPUT DELIVERY MODE

DELIVERY MODE	REVENUES (\$ MILLIONS)	SHARE (%)
Application Software Products	90	19
Turnkey Systems	24	5
Professional Services	92	19
Systems Integration	19	4
Systems Operations	99	21
Network Services	54	11
Processing Services	95	20
TOTAL EUROPEAN REVENUES	473	100

Source: INPUT estimate

Note: Numbers are rounded

**Company
Direction**

GSI's mission is to integrate software, information, services and computer networks to provide advanced solutions for the information processing, data transmission and management needs of modern corporations.

In 1991, GSI opened a European competence centre for transportation in Rotterdam, and the company is keen to expand its market penetration in its chosen specialties across Europe.

In accordance with the move to object-oriented methods, GSI is in the process of updating its own application software products, and is

In accordance with the move to object-oriented methods, GSI is in the process of updating its own application software products, and is introducing new versions of its automotive dealership management product and its Tolas-Distribution product.

In 1992 the company introduced a new Software Platform division to consolidate its development capabilities for the benefit of the all markets. It expanded the use throughout the company of methods to ensure quality.

Strengths

GSI's strengths include its capabilities in the areas of:

- Logistics flows comprising manufacturing, distribution, transport and financial management - market leader among independent vendors according to INPUT.
- Automobile distribution networks
- Tourism
- Banking
- Human resource management.

Apart from areas such as human resource management, where the company has recently consolidated its European position with the acquisition of Lammert in Germany, GSI has a strong vertical focus based on application software products.

Conclusions

The company monitors the application of new technologies closely and has expertise in artificial intelligence, expert systems and natural language.

The company is also one of the market leaders in both the French and the European outsourcing market, where the company's emphasis is increasingly on application operations utilising the company's vertical market expertise.



COMPANY PROFILE

HEWLETT-PACKARD

Corporate Headquarters
3000 Hanover Street
Palo Alto
California 94304
USA
Tel: 1 415 857 1501
Fax: 1 415 857 5518

European Headquarters
150, Route du Nant-d'Avril
CH-1217 Meyrin 2
Geneva
Switzerland
Tel: 41 22 780 8111
Fax: 41 22 780 8542

President: Lew Platt
Status: Public
Revenues:
Worldwide \$16.4 billion
Europe \$6.0 billion
Worldwide services \$3.5 billion
Number of Employees:
World-wide 92,600
Europe 19,800 (estimate)

INPUT LIBRARY

The Company

The Hewlett-Packard Company of Palo Alto, California, is one of the world's leading manufacturers of computer and peripheral products and measurement systems, including analytical and medical equipment and electronic components. The company's products are used in industry, business, engineering, science, medicine and education. The computer business represents 75% of Hewlett-Packard's total activity.

In 1992, Hewlett-Packard was ranked 29th largest in the Fortune survey of U.S. industrial companies. In 1992, it reported a worldwide sales revenue of \$16.4 billion (1991 \$14.5 billion). Of 1992 turnover, 24.7% arose from services, as compared with 23.9% in 1991, and 22.8% in 1990.

The company employs 92,600 people and has operations in more than 100 countries.

European Operations

Hewlett-Packard has been operating in Europe since 1959, when it set up its first manufacturing site outside the U.S. in Boeblingen, Germany.

In 1989, Hewlett-Packard listed its stock in the exchanges in London, Paris, Frankfurt and Zurich.

Hewlett-Packard is active in 27 European countries and also manufactures in the U.K., France, Spain and Italy. In addition to applied research conducted in most European manufacturing facilities, Hewlett-Packard is committed to fundamental research in its laboratories in Bristol, U.K., and its Science Centre in Pisa, Italy. Hewlett-Packard also participates in European Community research projects such as ESPRIT, AIM, EUREKA and RACE.

In addition to Hewlett-Packard's equipment and instrument offerings, the company offers a range of software products for mechanical, design, management information, hospital information systems and manufacturing automation.

As the largest Hewlett-Packard organisation outside of the U.S., European operations in 1992 accounted for \$6 billion of sales.

Of 19,800 European employees, 7,100 are in R&D and manufacturing, while 12,700 are in sales and support.

Financial Information

Exhibit A

FIVE-YEAR FINANCIAL SUMMARY (FYE 31-10) \$ MILLIONS

CONSOLIDATED GROUP REVENUES

	1988	1989	1990	1991	1992
Revenues	9,831	11,899	13,233	14,494	16,410
Annual Growth Rate%	-	21%	11%	10%	13%
Earnings before tax	1,141	1,151	1,056	1,127	1,325
Annual Growth rate%	-	0.8%	(8%)	7%	18%
Earnings after tax	816	829	739	755	549
Annual Growth Rate%	-	2%	(11%)	2%	(28)

Source: Hewlett-Packard

Exhibit B

FOUR-YEAR REVENUE SUMMARY (FYE 31-10)

TOTAL EUROPEAN OPERATIONS

	1989	1990	1991	1992
Revenues (\$ Millions)	4,131	4,764	5,378	6,083
Annual Growth Rate%	-	15	13	13

Market
Analysis

Exhibit C

1991/92 MARKET ANALYSIS BY BUSINESS ACTIVITY

ACTIVITY	1991	1991	1992	1992
	REVENUE (\$ MILLIONS)	PERCENT	REVENUE (\$ MILLIONS)	PERCENT
Equipment	11,019	76	12,354	75
Services	3,475	24	4,056	25
TOTAL	14,494	100	13,233	100

Source: Hewlett-Packard

Exhibit D

MARKET ANALYSIS BY GEOGRAPHIC AREA

REGION	1991	1991	1992	1992
	REVENUES (\$ MILLIONS)	PERCENT	REVENUES (\$ MILLIONS)	PERCENT
U.S.	9,613	51%	10,932	50%
Europe	5,789	31%	6,732	31%
Other Areas	3,457	18%	4,235	19%
TOTAL	18,859	100%	21,899	100%
Eliminations i.e. interarea transfers	(4,365)	(23)	5,489	(25)
TOTAL	14,494		16,410	

Source: Hewlett-Packard

Exhibit E

**MARKET ANALYSIS BY GEOGRAPHIC AREA -2
UNAFFILIATED CUSTOMER SALES**

REGION	1991	1991	1992	1992
	REVENUES	PERCENT	REVENUES	PERCENT
	(\$ MILLIONS)		(\$ MILLIONS)	
US	6,390	44%	7,212	44%
Europe	5,378	37%	6,083	37%
Other Areas	2,726	19%	3,115	19%
TOTAL	14,494	100%	16,410	100%

Source: Hewlett-Packard

Exhibit F

**ESTIMATED REVENUES BY DELIVERY MODE, SOFTWARE AND SERVICES,
EUROPE - HEWLETT-PACKARD, 1992**

DELIVERY MODE	REVENUES	SHARE
	(\$ MILLIONS)	(%)
Systems Software Products	205	3
Application Software Products	17	<1
Professional Services	120	2
Systems Integration	11	<1
Processing Services	15	<1
Total Software and Services	368	6
Equipment Services	614	10
Total Information Services	982	16
Equipment/Other Revenues	5,085	84
Total European Revenues	6,067	100

*INPUT estimates

Exhibit G

ESTIMATED REVENUES BY COUNTRY, INFORMATION SERVICES, EUROPE -
HEWLETT-PACKARD, 1992

COUNTRY	REVENUES (\$ MILLIONS)	SHARE (%)
France	155	16
Germany	185	19
U.K.	240	24
Italy	95	10
Netherlands	51	5
Belgium/Lux'	38	4
Spain	81	8
Switzerland	38	4
Austria	20	2
Sweden	22	2
Denmark	14	1
Norway	9	1
Finland	2	<1
Ireland	15	2
Portugal	10	1
Greece	1	<1
Eastern Europe	1	<1
Europe Balance	2	<1
Total Information Services	982	100

**INPUT estimates*

Exhibit H

ESTIMATED REVENUES BY INDUSTRY SECTOR, SOFTWARE AND SERVICES, EUROPE - HEWLETT-PACKARD, 1992

	REVENUES (\$ MILLIONS)	SHARE (%)
Industry Sectors:		
Discrete Manufacturing	42	11
Process Manufacturing	13	4
Transportation	2	1
Utilities	6	2
Telecommunications	4	1
Retail Distribution	1	0
Wholesale Distribution	6	2
Banking and Finance	24	7
Insurance	1	0
Healthcare	7	2
Education	2	1
National Government	17	5
Business Services	4	1
Other Industries	5	1
Cross-Industry Sectors:		
Engineering & Scientific	33	9
Systems Software Products	203	55
Total Software and Services	368	100

*INPUT estimates

Organisational
Structure

In October 1990, Hewlett-Packard began to implement changes in its managerial structure. This was aimed at simplifying its organisational structure, streamlining decision-making and giving managers more direct control over the technologies and sales activities required for the success of their business.

The company's activities are now organised into three divisions:

- Computer Systems Organisation
- Computer Products Organisation
- Test and Measurement Organisation

The Computer Systems Organisation brings together Hewlett-Packard's workstation and multiuser systems businesses.

The Computer Products Organisation combines Hewlett-Packard's PC and Peripheral businesses.

The Test and Measurement business combines the activities of Hewlett-Packard's Electronic Instruments and Microwave and Communication groups.

Exhibit I shows Hewlett-Packard's key executives and their responsibilities.

Exhibit I

KEY EXECUTIVES

David Packard	Chairman
Lew Platt	President and CEO
Dick Hackborn	Executive VP Computer Products Division
William E Terry	Executive VP Measurement Systems Organisation
Franco Mariotti	Snr VP and Director, Europe, Middle East and African Operations

Recent Major Projects

Examples of systems integration projects carried out in Europe by Hewlett-Packard are shown in Exhibit J.

Exhibit J**EXAMPLE OF PROJECTS
HEWLETT-PACKARD, SYSTEMS INTEGRATION**

Sector	Project Purpose
Oil	Executive information systems providing access to IBM, Digital and UNIX equipment.
Process Manufacturing	Implementation of customized production management systems across three countries
Telecommunication	Improve office productivity by integrating IBM Profs and Digital All-In-One into an open environment

Source: INPUT

Key Products and Services

For the purposes of this profile, INPUT is concerned only with the Software and Services activities of the Computer Systems Organisation.

Within the software and services market, as defined by INPUT, Hewlett-Packard is active in the Systems Software and Professional Services areas. In 1992, INPUT estimates that European revenues earned from these two markets were \$205 million and \$120 million, respectively. In addition, Hewlett-Packard is keen to develop its business in the systems integration market.

Hewlett-Packard's Professional Services Operation, (PSO) is now part of the Integrated Systems Group rather than the Customer Support Organisation. The worldwide computer organisation is shown in Exhibit K.

Exhibit K

WORLDWIDE HP COMPUTER ORGANISATION

HP CEO - Lew Platt:

- Customer Support Operations - Jim Arthur
- Computer Products Organization - Dick Hackthorn
- Computer Systems Organization - Wim Roelands
 - Integrated Systems Group - Mike Leavell
 - Professional Services Europe - Mike George

The goal of Hewlett-Packard's Computer Systems Organisation is "to lead the world in open, easy-to-use, client/server systems." However, this goal becomes more difficult to achieve if the distribution channels providing access to major accounts become dominated by rival equipment manufacturers' systems integration-based account management approaches. Indeed, it may become impossible for Hewlett-Packard to gain access to large accounts unless it, too, develops its systems integration services.

The difficulties of marketing mainly equipment to Hewlett-Packard's target and major accounts was confirmed by a survey which indicated that:

- Clients would like Hewlett-Packard to offer consulting, system integration and education services in addition to equipment.
- Equipment sales would be assisted by provision of these services, and adversely affected if these services were not available.
- Hewlett-Packard was perceived as having an advantage over Digital and IBM in providing open systems, client/server solutions.

Accordingly, Hewlett-Packard's newly formed Professional Services Organisation (PSO) offers consulting, systems integration and education services with the goal of "making Hewlett-Packard's computer strategy successful by making its customers successful with open client/server systems".

Software support is now handled by a combination of the Response Centre Organisation and the System Support Organisation (SSO). In addition, SSO handles all field maintenance and environmental services.

Industry Focus

Hewlett-Packard is currently targeting two industry sectors: manufacturing and telecommunications, in which the company has high levels of knowledge and experience.

Hewlett-Packard recognises the need for a strong base of applications software products to support its development of these sectors, and hence the need to develop its long-term relationships with appropriate applications software products vendors.

Hewlett-Packard currently has partnerships with Software AG, QAD and Datalogic in Europe.

Company Direction

Hewlett-Packard views two key trends as driving the marketplace:

- The move to standards-based, open systems and software
- The growth of distributed, client/server computing.

In response to these trends, Hewlett-Packard has identified what it sees as four key customer needs:

- To take advantage of new technologies while protecting current IS investments
- To improve access to information
- To reduce costs of managing and operating information systems
- Technical expertise to supplement own staff.

Hewlett-Packard perceives that clients wish to move towards open systems, client/server environments, but in the short to medium term, any systems will have to accommodate, and co-exist with the client's existing applications. These existing applications have often been developed in-house on proprietary equipment.

However, this co-existence is creating substantial technology/network integration opportunities as clients seek better access to information across distributed systems and organisations.

Hewlett-Packard has positioned its Professional Services organisation to address these needs. It will continue to:

- Offer Consulting, Educational and Systems Integration services in focused areas to help customers successfully take advantage of open, client/server environments.
- Increase Hewlett-Packard's solution offering through extensive use of partners and sub-contractors to supplement Hewlett-Packard core expertise.
- Serve as sub-contractor to Hewlett-Packard partners where Hewlett-Packard offer core competencies.

The company will also continue its focus on the telecommunications and manufacturing sectors, where it has been successful in the past.

Unlike other services vendors, Hewlett-Packard does not offer business consultancy, but sees its role as becoming involved in establishing the linkage between business strategy and information systems, in areas such as transition planning and IS architecture planning.

Strengths and Weaknesses

Hewlett-Packard's main strengths include:

- Established Vendor
- Reputations for Quality Products
- Strong Support Services
- Strong Systems Integration Skills

Hewlett-Packard is an established vendor in the marketplace. Founded in 1939, Hewlett-Packard is, in fact, the most established of the equipment vendors. Hewlett-Packard is viewed by clients as a "tried and trusted" company that has stood the test of a changing technological environment and has still managed to retain its position at the forefront of the equipment industry.

Hewlett-Packard has built up a solid reputation as a provider of quality products. Its current product range encompasses more than 10,000 offerings. Hewlett-Packard has always manufactured quality products and has continued its quality leadership in standard based computing. So much so that the Open Software Foundation chose Hewlett-Packard technology as basic components of its Distributed Computing Environment.

Hewlett-Packard has another strength in its strong technical skills and resources, particularly for systems integration. One of the key skills of Hewlett-Packard's SI unit is the ability to network widely differing technologies. Another is the ability to assist clients in planning the transition between proprietary and open systems client/server architectures.

As open systems and client/server computing grow, Hewlett-Packard's long-standing strength in customer service and support will become a powerful competitive advantage - particularly in the software and services arena.

The key challenges facing Hewlett-Packard in becoming a world-class, open systems, professional services provider are:

- Developing a systems integration support infrastructure
- Developing multinational systems integration support capability

In particular, Hewlett-Packard is keen to develop the talents of its project managers, increase its experience in managing subcontractors, and develop its bid support capabilities.

Conclusions

Hewlett-Packard's Professional Services Organisation provides all professional services, including pre-sales support and project managers for systems integration projects.

Hewlett-Packard, like many of its fellow systems vendors, is keen to develop its presence in the systems integration market. The vehicle for expanding its presence is the Professional Services Organisation (PSO) formed two years ago from the company's Application Engineering Organisation.

However, in contrast to many of its competitors, Hewlett-Packard's declared rationale for its commitment to systems integration is not primarily to maximise its position within the European systems integration market, but to support its computer systems business. The key elements of Hewlett-Packard's systems integration strategy are:

- To become a world-class open systems professional services provider
- To provide solutions for the manufacturing and telecommunications sectors
- To focus on technology integration

In the manufacturing sector, Hewlett-Packard has its own mechanical CAD product, but is also targeting systems integration projects based on production management applications.

Hewlett-Packard needs to form partnerships with professional services vendors who are prepared to undertake systems development activities as subcontractors to Hewlett-Packard on large projects. In other instances, Hewlett-Packard may itself be the subcontractor on a project. Ideally, Hewlett-Packard needs to further develop working relationships with the major professional services vendors such as Andersen Consulting and Cap Gemini Sogeti.

COMPANY PROFILE

ICL PLC

(Corporate Headquarters)
ICL House, 1 High Street
Putney
London SW15 1SW
United Kingdom
Tel: (44) 81 788 7272
Fax: (44) 81 788 2381

Chairman & Chief Executive: Peter Bonfield
Status: Public
Number of Employees (World): ca. 25,000
Number of Employees (Europe) ca. 22,000
Worldwide Revenue (FYE 31-12-92):
£2.48 bn
European Revenue (FYE 31-12-92):
£2.07 bn

The Company

ICL PLC, as it is known today, was formed in 1968 by the merger of the UK's leading indigenous computer suppliers, English Electric Computers and ICT.

In 1984, ICL was acquired by STC to form one of Europe's leading communications and information systems groups, which, by 1989, had achieved a turnover of £2.6 billion.

At the end of November 1990 Fujitsu Ltd took an 80% shareholding in the company. In October 1991 ICL merged with Nokia Data, thereby strengthening its European operations. (The remaining 20% is owned by Northern Telecom.)

ICL now has some 25,000 employees. It supplies computing hardware, applications software and services of all types, operating in over 70 countries worldwide and describes itself as the fourth-largest European-based information technology company, the second-largest computer systems and services supplier in the UK, first in Finland and second in Scandinavia as a whole.

ICL's headquarters are located in London, England. Its principal manufacturing and/or development centres are in Europe (UK, Finland, Sweden, Denmark) and the US, although manufacturing is also carried out in Russia and India.

Prior to ICL's acquisition by Fujitsu, the company's penetration of Europe outside the United Kingdom remained limited. However Fujitsu has encouraged ICL to strengthen its coverage of continental Europe, the acquisition of Nokia Data being the first of such moves.

ICL recognised that with the advent of open systems and a steady increase in the number of tenders calling for a total business

solution to be installed and made operational in the client's organisation, the company had to be active in systems integration or risk being relegated to a "box" or software supplier.

Europe is ICL's domestic market. ICL plans to be the leading supplier in its chosen markets in Europe in the 1990s. Corporate objectives are to increase turnover and market share with prime focus on Europe, through a policy of acquisitions, mergers, joint ventures and partnerships which fit the business strategy. Currently the UK still accounts for around half of total revenues, although in 1992 revenues from Continental Europe broke the £1 billion mark. Of the 25,000 employees over half are now outside the UK.

In 1993 ICL won the Queen's Award for Export Achievement for its DRS6000 range of computers and associated UNIX products. (Over the three-year period covered by the award ICL's exports of mid-range systems, peripherals, software and services had trebled to reach over £250 million.) It was also awarded the Queen's Award for Technological Achievement for its Series 39 SX "Open" mainframe systems.

It is ICL's policy to collaborate with other leaders in technology globally, and in pursuit of this strategy ICL has partnership agreements with companies in Europe, the United States and the Far East.

Financial Information

Exhibit A provides a summary of ICL's recent financial performance.

The 1991 figures include three months of Nokia Data and 6 months of Sorbus consolidated into the total and the full effect in 1992.

Exhibit A

FIVE-YEAR FINANCIAL SUMMARY (FYE 31-12) (£ MILLIONS)

YEAR	1988	1989	1990	1991	1992
Revenues	1,353	1,632	1,612	1,876	2,478
Growth Rate (%)	3	21	-1	16	32
Profit after tax	85.9	94.9	69.0	41.1	26.3
Growth Rate (%)	23	10	-28	-40	-36
European Revenues				1,565	2,072
European Staff				26,000	25,000

1992 revenue shows a 32% increase over 1991, although bottom line profits have suffered a decline (36%). Over the period 1988 to 1992 ICL's revenues grew at a compound annual growth rate of 13%, although a significant proportion of this is due to acquisition.

Market Analysis

Exhibit B shows ICL's 1992 European revenue broken down by product/service, while Exhibit C provides an estimated breakdown of revenue by industry sector.

Exhibits D, E and F show INPUT's estimates of ICL's software and services revenues. Exhibit D provides a breakdown by delivery mode, Exhibit E by country and Exhibit F by industry sector.

Exhibit B

EUROPEAN REVENUE BREAKDOWN BY PRODUCT/SERVICE, 1992

SERVICE/PRODUCT	REVENUES (£ MILLIONS)	PERCENT
Services*	735	35
Software Products	273	13
Hardware	993	48
Other	70	3
TOTAL	2,072	100

Source: ICL

* NB. includes £439m hardware maintenance

Exhibit C

REVENUE BREAKDOWN BY SECTOR 1992

SECTOR	REVENUES (£ MILLIONS)	PERCENT
Central Government	435	21
Local Government/Health/Education	379	18
Retail	325	16
Manufacturing	151	7
Transportation	27	1
Financial Services	207	10
Unspecified	547	26
TOTAL	2,072	100

Source: ICL

The above analysis clearly shows ICL's strength in Government and Retail markets.

Exhibit D

**Estimated Revenues by Industry Sector, Software and Services, Europe
ICL, 1992**

	REVENUES (\$ MILLIONS)	SHARE (%)
Industry Sectors:		
Discrete Manufacturing	35	4
Process Manufacturing	5	1
Transportation	5	1
Utilities	40	4
Telecommunications	10	1
Retail Distribution	90	9
Wholesale Distribution	0	0
Banking and Finance	65	7
Insurance	0	0
Healthcare	45	5
Education	5	1
Local Government	50	5
National Government	70	7
Business Services	25	3
Other Industries	15	2
Cross-Industry Sectors:		
Accounting	25	3
Education & Training	5	1
Engineering & Scientific	10	1
Human resources	5	1
Office Systems	55	6
Planning & Analysis	5	1
Other Cross-Industry	5	1
Systems Software Products	380	40
Total Software and Services	950	100

Source: INPUT estimates

Exhibit E

**Estimated Revenues by Delivery Mode, Software and Services, Europe
ICL, 1992**

DELIVERY MODE	REVENUES (\$ MILLIONS)	SHARE (%)
Systems Software Products	380	11
Application Software Products	50	1
Turnkey Systems	190	6
Professional Services	105	3
Systems Integration	130	4
Systems Operations	60	2
Network Services	30	1
Processing Services	5	<1
Total Software and Services	950	28
Equipment Services	865	26
Total Information Services	1,815	54
Equipment/Other Revenues	1,550	46
Total European Revenues	3,365	100

Source: INPUT estimates

Exhibit F

**Estimated Revenues by Country, Information Services, Europe
ICL, 1992**

COUNTRY	REVENUES (\$ MILLIONS)	SHARE (%)
France	80	4
Germany	40	2
UK	1,165	64
Italy	30	2
Netherlands	42	2
Belgium/Lux'	12	1
Spain	15	1
Switzerland	17	1
Austria	8	0
Sweden	143	8
Denmark	67	4
Norway	40	2
Finland	143	8
Ireland	6	0
Greece	1	0
Eastern Europe	10	1
Total Information Services	1,815	100

Source: INPUT estimates

Organisation

Over recent years ICL has rationalised its organisation structure and dramatically reduced its infrastructure/corporate overhead costs.

The company's principal activities are carried out by 26 business divisions, which are organisationally grouped under three broad business streams:

1. Industry Solutions.

This covers ICL's major targeted vertical industry markets. There are Divisions which address:

- government and major companies (GMC)
- local government and health
- financial services
- retail systems
- manufacturing and commercial

In 1993 ICL set up four industry software companies:

- MSPL and MCS (manufacturing)
- Omnia-ICL and I-Bank (financial services)

2. Services.

ICL has several service divisions, one of the largest of which is ICL Enterprises, formed in 1993 when ICL grouped together several of its previously separate service activities under a new organisational unit. This new unit aims to provide the more "value-added" services, in particular the consulting element. It focuses on:

- large and/or complex projects
- systems integration
- risk management
- business process engineering
- training and management education
- environmental services
- system security
- project management

ICL Enterprises consists of:

- Peritas (an ICL "spin-off" training company)
- Workplace Technologies Ltd (another "spin-off", active in environmental and building services)

- Enterprise Systems (large-scale project management, consultancy, systems integration, process engineering and network management services)
- ICL Secure Systems (consultancy, design and implementation on all aspect of IT security)
- Secure Systems Development Centre (development of highly secure products to support major projects)

Other services offered by ICL include:

- support/maintenance of hardware and software
- consultancy
- training
- disaster recovery
- project management
- systems integration
- bespoke software development
- facilities management

ICL's Customer Service Division is the largest computer services organisation in the UK with over 2,600 skilled staff providing maintenance, support and related professional services to over 6,500 organisations, including both ICL and other vendors' customers, representing 32,000 sites across the UK.

The division provides "service products" spanning the life cycle of computer use, from initial planning, through to system introduction, maximisation of operational use until maturity and eventual replacement. It has four main areas of operation:

- System Service - the maintenance and repair of mainframes, departmental systems, PCs and networks;
- Software Services - assisting the customer in physical implementation, support, use, error correction and maintenance of software;
- Professional Services - high value services supporting customers in developing, operating and improving the productivity of their IT systems;
- Multi-vendor Services (trading as Sorbus UK, as the result of a joint venture with Bell Atlantic) - offering know-how in advanced diagnostics, communications and logistics.

3. Volume Products.

This business stream covers PCs, mid-range systems and middleware, and, as well as using direct sales operations, is increasingly distributing its products through resellers.

In June 1993 ICL announced the formation of a new business division, to be known as ICL Client-Server Systems. This unit combines the previous Mid-Range and Personal Systems Divisions. Some 2,300 people are employed across Europe. It is responsible for the development, design and worldwide marketing of ICL personal systems, servers and integrated middleware for enterprise-wide client-server computing. (1992 revenues for these product lines is estimated at £1 billion.)

Divisions within ICL Client-Server Systems include:

- Personal Systems Division (PCs and terminals)
- Systems Division (office systems products, including TeamWARE, OfficePower and related middleware)
- Server Systems Division (server products)

The organisational philosophy is to build on the synergy and individual success of the three divisions to provide an overall, integrated offering.

Recent Alliances/ Acquisitions

Recent alliances and acquisitions by ICL include:

1991

- Completion of the merger of ICL and Nokia Data, the leading information technology company in Scandinavia.
- Joint venture company, Guardian Computer Services, formed to increase penetration of the UK disaster recovery market.
- Sorbus formed, a equal joint venture company with Bell Atlantic Business Systems Inc. to provide total managed services in Western Europe.
- 75% holding acquired in CFM, a leading UK facilities management company.

1992

- Peritas (external training) and Workplace Technologies (building consultancy) were launched as autonomous businesses.
- Dava Oy (Finland) and ICL PC GmbH (Germany) established as volume product companies to markets PCs, terminals and peripherals.
- Technology plc acquired, creating for ICL the largest PC and UNIX resale/distribution operation in the UK.
- Three new companies established by ICL and Fujitsu:
 - In North America, Fujitsu-ICL Systems Inc., bringing together the respective retail and financial services businesses of the two companies under ICL's management control.
 - In Oceania, Fujitsu Australia Ltd., combining the operations of both companies under Fujitsu's management control and with ICL retaining a 20% investment.
 - In Europe, Fujitsu Systems Business - Europe brought Fujitsu's supercomputer and M-series general purpose systems business under ICL management control.
- Joint venture company set up with iBank Systems Inc. in the US to develop open, distributable retail banking systems.
- Equity stake taken in PSI, a leading US-based multi-vendor systems integrator specialising in retail in-store systems internationally.

1993

- Shareholding in CFM increased to 100%.
- Europe-wide marketing and distribution agreement signed with UNIMOS GmbH (Germany) for its CX-BASIC product, which allows users to migrate applications from Nixdorf to ICL.
- 51% shareholding taken in Softbank Ltd., a leading Polish banking software company. The deal includes transfer of both technical and managerial know-how as well as investment funds. The two companies had already been working together

for 4 years, building up a leading position in the Polish retail branch banking market.

- Subsequent joint venture known as BelSoftBank between Softbank (see above) and Sberiegatelnyni Bank ("Sberbank") in Belarus (formerly Byelorussia). The initial objective is the computerisation of the savings bank's branches and the marketing of the system to other banks in Belarus. Longer term intentions include the wider marketing to other CIS countries.
- International marketing agreement in the field of law enforcement between ICL and UK neural network and digital signal processing pioneer Cambridge Neurodynamics Ltd (CNL), involving the latter's image recognition and digital signal processing systems. ICL will market and distribute two CNL systems: ANADACTYL (Automatic Fingerprint Recognition system) and a group of Photo capture, storage and retrieval facilities.
- Joint marketing agreement with Uniplex Ltd, supplier of open systems and subsidiary of IMI plc.
- Agreement signed between ICL Enterprises and French software house Emeraude (a joint venture company between Bull and Syseca), whereby ICL will provide the Ada interface for use with Emeraude's ECMA PCTE (Portable Common Tool Environment) products and ICL will be licensed to use Emeraude's PCTE products and have the option of becoming a distributor for them.
- Strategic partnership agreement signed between ICL and Xscribe Corporation (US). Xscribe will have exclusive marketing rights for selected ICL products and services for the US legal market. ICL gains a 12% shareholding in Xscribe and representation on its Board. Xscribe will also assume responsibility for ICL's existing US office systems customer base and support ICL's enterprise-wide integrated office systems and hardware platform. (*Note: this does not affect Fujitsu-ICL Inc.'s North American retail and financial services business operations.*)
- Agreement between ICL and Fujitsu Ltd to introduce TeamOFFICE, ICL's client/server office information system, in Japan.

Major Recent Projects

Recent contracts won by ICL include:

- A contract, in conjunction with Hoskyns, awarded by the UK Department of Social Security (DSS) for a major new IT programme called ASSIST (Analytical Services Statistical Information System). The contract involves all aspects of the development, integration and supply of the system, which will be based on hardware and software products from ICL's OPEN*framework* range, with Hoskyns providing bespoke development.
- A £1.6 million EC-funded project in Romania (under the auspices of the PHARE programme) for the Romanian National Commission for Statistics (CNS). The order comprises four DRS 6000 mid-range UNIX systems, 25 80486 PCs, ORACLE database management software, a statistical system, training and service support. (ICL has established a permanent office in Romania with 5 staff and plans to expand its business in the area.)
- A 3-year strategic "preferred supplier" framework agreement with The Scottish Office in connection with its Scottish Office Technical Strategy (SCOTS). There is a potential £10 million budget and ICL, in conjunction with P-E International, will provide UNIX servers and workstations, office automation software (based on ICL's TeamWARE and TeamOFFICE environment), industry standard applications and a full range of services, including installation, training, maintenance and systems management.
- Two associated contracts from Eastern Electricity (UK), worth a total of £1.9 million, for customer service systems.
- An innovative public transport information service for Centro, the West Midlands UK Passenger Transport Executive (UK). A consortium led by ICL Enterprises will combine satellite bus tracking and electronic on-street information displays in an advanced passenger information system deal worth £1.2 million. ICL is acting as systems integration prime contractor. Other consortium members are W.S. Atkins Consultants Ltd. (UK), Lumiplan (France) and British Rail Computing.
- A £450,000 contract for New Islington and Hackney Housing Association (UK) for the transition of its information systems to an open environment. ICL will act as prime contractor for the first stage of the project, which involves replacing the current

system based on an IBM mainframe and stand-alone PCs. The deal involves a DRS6000 and a variety of software and services.

- OSPREY, a "multi-million pound" UK Department of Trade and Industry (DTI) project to provide office automation facilities to more than 4,000 users throughout the DTI over a three-year period. ICL will act as prime contractor, with P-E International and AMP Systems Ltd as sub-contractors. ICL will provide a variety of products and services including DRS6000 UNIX servers, the full range of TeamWARE/TeamOFFICE-based office automation software, and a range of services including project management, systems integration, training and systems management.
- A "multi-million pound" deal with Commodore Business machines, putting Commodore's after-sales operations in ICL's hands. ICL Customer Service will handle all pack, build, configuration, warehousing, systems support and distribution to Commodore's customers, distributors and retailers. ICL will also provide full warranty and extended warranty service and maintenance.
- A systems integration contract from the UK Immigration Service for a distributed information system for storing and displaying both text and images at major UK airports and seaports. The system will involve two DRS6000 computers to hold a central database, supporting 30 DRS3000 servers installed in offices at air and sea-ports, plus 600 PCs and terminals for use by immigration staff. A high-speed, resilient network will link the system. ICL's Powervision software will be used to scan in, index and store hand-written documents and photographs in the database. Sub-contractors on the project will be ICL's newly formed specialist service companies Peritas Ltd (training) and Workplace Technologies Ltd (cabling and environmental services).
- £15 million order from Swedish Prison Authority, Kriminalvårdsstyrelsen, for installation by 1995 of a decentralised, networked system across 180 facilities to replace the current centralised system. The contract involves ICL's TeamWARE/TeamOFFICE software, PCs and UNIX systems, software development services, consultancy and training. The contract also covers personnel, materials and facilities management systems for the prisons.
- £2.4 million order from Finnish insurance company, Kansa Corporation Ltd, for ICL's Advanced Systems Management (ASM) software, part of the TeamWARE range. During the

first phase of the project half of Kansa's existing IBM PS/2 computers are to be replaced with ICL PCs. The deal also covers both software and hardware maintenance plus co-operation between the two parties on systems development.

- £250 million secure office integration project (CHOTS) for the UK Ministry of Defence.

Key Products and Services

(i) Technologies

ICL claims to have over 25% of the UK corporate systems market with an installed UK base of more than 1,800 mainframes. The company's strategy for the corporate server market is based on its flagship Series 39 range of mainframes, GOLDRUSH MegaSERVER (ICL's open database server using parallel processing technology) and the Open VME operating system.

ICL has been collaborating with Fujitsu since 1981. The current Series 39 SX and DX systems are designed by ICL and use Fujitsu chip manufacturing processes.

ICL's policy for VME is to continue to develop it in support of Open Standards. At the same time, VME will extend its functionality to meet the continuing demands of corporate users, particularly in areas such as high-capacity databases, high security, self-managing systems, and high transaction throughput.

ICL's CAFS-ISP (Content-Addressable File Store--Information Search Processor) is a combined hardware and software system that allows rapid searches of large quantities of information. CAFS-ISP is available on all ICL VME mainframes and provides for response times at the terminal up to 60 times faster than conventional techniques.

ICL has long been at the forefront of the open systems movement in Europe and was a founder member of X/OPEN and UNIX International. It is strongly committed to open systems and since 1991 its whole product line, from mainframes to PCs, has been 'open'. It has provided numerous specialists to chair the committees responsible for developing standards for X.400 electronic mail, office document architectures and file transfer.

In May 1991 ICL announced its *OPENframework* architecture. *OPENframework* is a blueprint for distributed computing and offers what ICL describes as a "simple, certain method for undertaking Systems Integration in an Open Systems world". In

fact the company describes *OPENframework* as "the basis of ICL's Systems Integration strategy".

ICL will continue to place considerable emphasis on Open Systems across its product range. Increasing levels of R&D are being focused to enable its clients to benefit from standards of interworking, application portability, systems management, security and high throughput Open Transaction Processing.

ICL is also committed to UNIX and Open Systems standards for its departmental and mid-range systems, where its systems fully conform to X/Open and Posix standards. The range is based on operating systems provided by UNIX Software Laboratories in line with the UNIX International road map and all developments are compatible with ICL's *OPENframework* architecture.

ICL is a founder member of the Standards Promotion and Application Group, SPAG, in which leading European IT companies have been brought together by the European Commission to promote OSI standards. ICL is also a member of: EUROSINET, IGOSINET and COSINE.

ICL takes an active role in the IT research programmes run under the auspices of the European Commission, e.g. ESPRIT II and EUREKA. It also has a one-third share in an advanced research institute in Munich investigating fifth-generation techniques. This is owned jointly by ICL, Bull of France and Siemens of Germany.

ICL's application development and systems integration facilities will continue to be enhanced through seven key product programmes:

- Office
- User access
- Database
- Networking
- Transaction management
- Systems management
- CASE

Two of ICL's major strengths in systems integration are its networking capability and its expertise in system security.

(ii) Industry Solutions

The public sector, including defence, makes by far the largest contribution to ICL's revenues, accounting for around almost 40% of 1992 turnover.

Overall, ICL is organised into five industry-specific business units, covering the following sectors in the UK.:

- government and major companies (GMC)
- local government and health
- financial services
- retail systems
- manufacturing and commercial

On a worldwide basis, ICL targets the Retail and Financial Services sectors. ICL Secure Systems also addresses these two sectors worldwide and in addition focuses on:

- IT in telecommunications
- Airlines and ports
- The security/enforcement market

Its security/enforcement capability is a particular specialisation of ICL and stems from the company's work for the UK Ministry of Defence (MOD). This area is now thought to be growing in excess of 30% per annum and is applicable to the sectors shown in Exhibit G.

Exhibit G

SECURITY/ENFORCEMENT MARKET

- Banks and Stockbrokers
- Local Government and Health care
- Legal Profession

Detecting financial fraud is obviously a critical application for this technology. The key is not in restricting access to particular transaction types by user but in having the capability to audit each user's pattern of work and identify any deviations from the norm. Within local government and the health sector, data held on individuals is also highly sensitive, as are briefing details within the legal profession.

The Local Government sector is a major niche market for ICL and the company claims to be the third most successful vendor of information systems to the retail sector worldwide.

In the public sector ICL claims to be:

- The leading supplier of information systems to local authorities in the UK, with over 50% of the installed base
- The leading supplier of the UK Central Government and associated departments

In financial services ICL significantly augmented its capabilities and its customer base with its acquisition on Nokia Data, which was strong in the sector. Nokia Data traditionally concentrated on large projects, often selling, installing and networking thousands of PCs and their applications within a single project. This meant that the organisation was complementary to that of ICL, whose traditional expertise lay in networking mainframes and minicomputers, and thus gave ICL greater access to the more rapidly growing terminal, personal computer and UNIX-based markets. In the manufacturing sector, ICL is estimated to have approximately 150 installations of its ONCE production management application software product.

(iii) Key Application Software Products

Despite the increasing emphasis being placed by ICL on software and services, application software products remain the smaller component of ICL's overall software product revenues as the breakdown of European revenues shown in Exhibit H below shows:

Exhibit H

EUROPEAN SOFTWARE PRODUCT REVENUES 1992

Systems Software	62%
Application Software	38%
TOTAL Software Products	100%

ICL has been endeavouring to increase the proportion of its revenues from application software products. A similar analysis a year ago put application software products at only 15% of software revenues, so much progress appears to have been made.

The company's aim in the software arena is to meet customer requirements for:

- user applications
- development tools
- operational control systems

The product portfolio is continually expanding with products available from a number of sources: ICL-developed; strategic integration products from collaborating companies; products from companies subsequently acquired by ICL; products acquired and/or extended through equity collaborations; the CASE Partners and Software Partners programmes.

ICL's Industry Solutions Divisions have increasingly invested in the development of industry applications supplied as packages with supporting services to clients. These include, for example, the LOGIC II series of applications for local government, ONCE and MAX packages for manufacturing, and point-of-sale software for retail.

In other cases, such as the OMNIA software in Financial Services, ICL owns the controlling interest in the software and services provider.

ICL's UNIX catalogue contains over 750 entries and there are now over 16,000 applications available on UNIX.

Perhaps the most significant strategic systems software product acquired by ICL is OfficePOWER, an integrated office information system, which by mid-1992 had 300,000 users worldwide. The range includes X400 electronic mail, client-server PC applications integration, document management, workflow processing and document imaging options, as well as application development and management tools.

ICL's main software products are summarised in Exhibit I:

Exhibit I

MAJOR SOFTWARE PRODUCTS

Systems Software	
Open VME	Series 39 operating system
DRS/NX	UNIX operating system for DRS series
Systems Management Tools	
TeamCARE	Enterprise-wide systems management
Disk Manager	On-line administration and configuration
Print Manager	Print services management
Backup Manager	Backup tool
Filesystem Manager	File system for high integrity/fast recovery
Enhanced Graphical Shell	Shell enabling graphical script creation
Access Manager	Network logon access control
Operations Manager	System management
Dialogue Manager	OLTP development environment
Power Manager	OfficePower system network management
Information Managers	Search accelerators for Ingres/Informix/Oracle databases
TP Manager	Client-server TP system (Tuxedo)
TPMS	VME transaction processing management
IDMSX	VME database management
CUBIT	VME management database

Exhibit I (cont'd)

MAJOR SOFTWARE PRODUCTS (cont'd)

Applications/Application Development Software	
OFFICEPOWER	Set of integrated UNIX office systems:
XPress	X.400 electronic mail
PowerFile	Text database management
PowerFlow	Workflow
PowerKit	Applications programming interface
PowerVision	Document Image processing
TeamWARE	PC LAN based groupware range:
TeamOFFICE	Integrated workgroup with mail, calendar, forum, workflow and document management
TeamNET	PC LAN services/facilities
TeamCOMMS	Interconnection with minis, mainframes and networks
TeamTOOLS	TeamOFFICE application development environment
Programmer Workbench	VME Cobol design/modification workbench
QuickBUILD range	various VME application development tools
FORMS	PC GUI interface development tool

Strategic
Analysis

(a) Company Direction

ICL's corporate strategy consists of the following key elements:

- to expand in Europe;
- to strengthen its presence in specific industry markets;
- to increase its share of the services market;

- to provide products of the highest quality based on open systems.

ICL has previously been criticised for its relatively poor coverage outside its "home" territory. The UK now accounts for around half ICL's total revenues of £2.5 billion (compared with an estimated 64% in 1991), with over £1 billion derived from Continental Europe in 1992. Much of this increase is due to the consolidation of the acquired Nokia into revenue streams, as well as the effect of other, smaller acquisitions and joint ventures.

Much of the company's more recent activity to extend its geographic coverage has been focused around Scandinavia and Eastern Europe. However, the bulk of ICL's systems integration revenues still originate in the United Kingdom.

Extending ICL's coverage of Western Europe is seen as the key to meeting the company's systems integration growth objective, and major collaborations in continental Europe are perceived as the means by which ICL's coverage can be rapidly extended.

ICL groups Western Europe (excluding the United Kingdom) into three sectors:

- Southern Europe (Spain, Italy, Switzerland and Austria)
- Central Europe (Germany, France and Benelux)
- Northern Europe (Scandinavia and Eastern Europe)

ICL believes that it has developed a *"culture of change"* which has resulted in a *"flexible and responsive organisation"*.

Its product strategy is based around the three broad groupings reflected in the organisational structure (see earlier Section):

Industry Solutions

Since the early 1980s ICL has concentrated on the provision of IT-based solutions (hardware and software) to specific vertical industry markets. The most important of these are:

- financial services
- retail
- public administration (central, regional and local Government)

Others served include:

- manufacturing
- health
- utilities
- travel/transport

Services

50% of ICL's revenues now derive from software and services (although it must be remembered that ICL includes hardware maintenance/service in this category), and the company has long seen this area as critical to its continued/future success. Services it sees as key are:

- support/maintenance of hardware and software
- consultancy
- training
- disaster recovery
- project management
- systems integration

ICL characterises systems integration as a high risk business, and views a lengthy relationship with potential clients as essential to success. A costed PERT analysis is required as a key element in the business approval process for systems integration projects, and this is used to ensure that the project team has sufficient understanding of the client and his requirements. The rule within ICL Secure Systems is that unless the company has been working with the potential client for a lengthy period, a bid should not be put forward.

ICL believes that price is seldom a differentiator on large projects, that the main attribute sought by the potential client is certainty that the vendor can deliver. The acquisition of ICL by Fujitsu has served to reduce the perceived level of risk in using ICL as a systems integrator.

Volume Products

ICL has long anticipated a move away from its mainframes towards mid-range and PC platforms and recognised the need to establish low-cost channels to market for its volume products, which have become "commodities". It has also recognised the need to carry other suppliers' products as well as its own in order to meet customer needs.

ICL is still dependent on the competitiveness of its computer equipment and will continue to rely extensively on Fujitsu's manufacturing and R&D capability to ensure the company's ability to compete in this area.

(b) Strengths and Weaknesses

ICL's acquisition by Fujitsu contributed significantly to perception of ICL in the marketplace. Previously there had always been doubts regarding ICL's financial stability and its ability to remain competitive in equipment manufacture. These doubts have been largely dispelled by the company's acquisition by Fujitsu. This acquisition has guaranteed ICL's continued access to advanced equipment R&D and manufacturing processes and provided an aura of financial stability which is essential for the company to win large equipment supply and systems integration contracts.

ICL's geographic coverage of the European market remains relatively poor, particularly in France and Germany, though the company has significantly strengthened its position in Continental Europe, especially in Scandinavia and is well positioned to target Eastern Europe.

Similarly, while ICL in the UK has a strong presence in the government, manufacturing and utilities sectors, it has in the past only specifically targeted the retail and financial services sectors outside the UK. ICL has traditionally experienced difficulty in building up comparable portfolios of industry-specific application software products compared to competitors such as Digital and IBM.

Management consultancy capability is often viewed as desirable to assist in gaining access to systems integration projects, many of which start life as business process re-engineering projects. ICL still lacks the depth of consultancy capability possessed by competitors such as Andersen Consulting and being assembled by competitors such as Cap Gemini Sogeti and IBM, although its successes in winning a number of major projects suggest that this is nowhere near the weakness it once was.

Additional strengths within ICL include the company's commitment to open systems, its network integration capability and its expertise in secure office automation.

(c) Conclusions

ICL, like many of the leading equipment vendors, recognises the need to provide total business solutions or become relegated to a

"box" supplier and incur the low margins and high levels of competition associated with that business.

ICL has the capability to become a second-tier, if not the leading, systems integrator within the UK. However, the company's systems integration presence outside the UK is still limited. If the company is to become a major player in systems integration across Europe, then it will need considerable financial support from Fujitsu to make the necessary acquisitions.

ICL's business consultancy and project capabilities have in previous analyses been described as very limited in comparison with those of the major professional services vendors. Whilst this may still be true in the absolute sense, ICL has gained a significant amount of ground over the last 2 years and has the experience of several major projects under its belt.

ICL considers itself to be in a strong position for two reasons, namely the financial stability of its parent, Fujitsu, and its strategy which emphasises open systems and software and services. It considers Europe as its domestic market and plans to be the leading supplier in its chosen markets in Europe in the 1990s. Corporate objectives are to increase turnover and market share with the prime focus on Europe, through a policy of acquisitions, mergers, joint ventures and partnerships which fit the business strategy.

It is ICL's policy to collaborate with other leaders in technology globally, and in pursuit of this strategy it has partnership agreements with companies in Europe, the United States and the Far East.

(d) Strategic Assessment

At one time considered by many as the 'lame duck' amongst the European system vendors, ICL emerged as the most profitable by the end of the 1980s through a policy of technology dependency on Fujitsu and strong commercial management of its operations. Its absorption into the Fujitsu group has finally laid to rest any concerns over its future.

Today ICL is embarked upon a series of initiatives targeted at achieving leadership positions in Europe in open systems, PCs and software services. One important element of their strategy to achieve this is the development of joint ventures (e.g. the SORBUS initiative) designed to penetrate key market sectors.

ICL has made significant progress in the development of its systems integration contracting business and we would expect this progress to continue in the future. Its technology and financial strength are assured by Fujitsu, although it is willing and able to offer third party products if customer demand or the solution requires it. The development of strong, product-based offerings to target specific areas, e.g. retailing (EFTPOS terminals) and banking (ATMs), is expected to be a winning strategy.

COMPANY PROFILE

**INTERNATIONAL BUSINESS
MACHINES (IBM)
CORPORATION**

Old Orchard Road
Armonk, NY 10504
U.S.A.
Tel: (914) 765-1900
IBM Eurocoordination S.A.
Tour Descartes Cedex 50
92066 Paris-La-Defence
France
Tel: +33 (1) 49 05 90 00

Chairman: Louis V. Gerstner, Jr.
Status: Public
Number of Employees (End 1992): 301,542
Revenue (FYE 31-12-92): \$64.5 billion

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The Company

IBM is the world's largest vendor of computer hardware and related software and services. It has traditionally been known more for its marketing strength and customer support than technical leadership. Among suppliers, IBM has the broadest product line and it services virtually all industry sectors.

In 1992, IBM reported worldwide revenues of \$64.5 billion and a loss of \$4.97 billion after restructuring charges. Net earnings on operations, however, were \$2.6 billion before taxes and charges.

IBM has a very broad set of competitive capabilities in the market. Although it still controls over 50% of the U.S. computer market (70% for mainframes) it only has about 20% of the worldwide market, down from a 30% marketshare in 1985.

In the light of its difficulties of the past few years, IBM has taken drastic actions to reduce costs, to streamline its structure and to sharpen its worldwide competitiveness.

It has consolidated manufacturing capacity and reduced layers of management by offering a number of financial incentives and early retirement plans. To respond to a market that is increasingly interested in buying integrated system solutions rather than products for specific tasks, IBM has worked hard to convert a marketing organisation that is product-sales oriented to one that is focused on providing solutions to customers. Systems integration, facilities management and an increasing array of consulting, functional and operational services have become major ways to closer customer relationships.

**IBM Financial
Information**

A five-year financial summary for IBM is provided in Exhibit A.

Exhibit A**FIVE-YEAR FINANCIAL SUMMARY FOR IBM (FYE 31-12)**

US\$ MILLIONS					
YEAR	1988	1989	1990	1991	1992
Worldwide Revenues	59,598	62,654	68,931	64,766	64,523
Annual Growth Rate (%)		5.1	10	-6.0	-0.4
Profit After Tax	5,741	3,722	5,967	-2,861	-4,965
Earnings per Share (\$)	9.7	6.4	10.4	-5.0	-8.7

Source: IBM

IBM revenues in 1992 were essentially flat compared to the year before. The \$4.97 billion loss resulted from \$11.6 billion in restructuring charges for workforce and capacity reductions. Results were affected by the revenue decline in high-end systems and by continuing price wars in the personal computer business. At the same time, IBM continued to shift resources towards consulting, systems integration and related services.

Revenue from sources other than hardware accounted for 48% of IBM's total, up from 43% the year before. Services revenue grew 32% year-to-year worldwide, and in Europe IBM reported that they had become the largest IT "professional services" company with revenues of more than \$2.2 billion.

**Market
Analysis**

A geographical breakdown of IBM's revenues is provided in Exhibit B.

Exhibit B**REVENUE BREAKDOWN BY REGION**

YEAR	1990	1991	1992
United States			
- Revenues (\$m)	27,106	24,427	24,633
- Percent	39	38	38
Europe/ Middle East/Africa			
- Revenues (\$m)	27,197	26,114	24,971
- Percent	39	40	39
Asia Pacific			
- Revenues (\$m)	9,544	9,275	9,672
- Percent	14	14	15
Americas			
- Revenues (\$m)	5,084	4,950	5,247
- Percent	7	8	8
TOTAL (\$M)	68,931	64,766	64,523
- PERCENT	100	100	100

Source: IBM

Percentages subject to rounding errors

Exhibit C provides a breakdown by product category.

Exhibit C

THREE-YEAR REVENUE BREAKDOWN BY TYPE OF OFFERING

YEAR	1990	1991	1992
Software revenues (\$m)	9,865	10,498	11,103
- Percent	14	16	17
Maintenance revenues	7,198	7,414	7,635
- Percent	10	11	12
Services revenues (\$m)	4,124	5,582	7,352
- Percent	6	9	11
Other inc rentals revenues (\$m)	47,744	41,272	38,433
- Percent	69	64	60
TOTAL (\$M)	68,931	64,766	64,523
- PERCENT	100%	100%	100%

Source: IBM

Percentages subject to rounding errors

INPUT's analysis of IBM's software and services revenues in Europe is provided by delivery mode in Exhibit D, by industry in Exhibit E and by country in Exhibit F.

Exhibit D

**ESTIMATED REVENUES BY DELIVERY MODE, SOFTWARE
AND SERVICES - EUROPE, IBM, 1992**

DELIVERY MODE	REVENUES (\$ MILLIONS)	SHARE (%)
Systems Software Products	3,785	16
Application Software Products	215	1
Turnkey Systems	250	1
Professional Services	1,285	5
Systems Integration	750	3
Systems Operations	50	<1
Network Services	145	1
Processing Services	160	1
Total Software and Services	6,640	28
Equipment Services	3,170	13
Total Information Services	9,810	42
Equipment/Other Revenues	13,745	58
Total European Revenues	23,555	100

* INPUT estimates

Exhibit E

ESTIMATED REVENUES BY INDUSTRY SECTOR, SOFTWARE
AND SERVICES - EUROPE, IBM, 1992

	REVENUES*	SHARE
	(\$ MILLIONS)	(%)
Industry Sectors:		
Discrete Manufacturing	390	6
Process Manufacturing	175	3
Transportation	30	<1
Utilities	95	1
Telecommunications	55	1
Retail Distribution	155	2
Wholesale Distribution	185	3
Banking and Finance	680	10
Insurance	270	4
Healthcare	55	1
Education	40	1
Local Government	55	1
National Government	55	1
Business Services	55	1
Other Industries	95	1
Cross-Industry Sectors:		
Engineering & Scientific	85	1
Office Systems	285	4
Planning & Analysis	85	1
Systems Software Products	3,785	57
Total Software and Services	6,640	100

* INPUT estimates

Exhibit F

ESTIMATED REVENUES BY COUNTRY, INFORMATION SERVICES
EUROPE, IBM, 1992

COUNTRY	REVENUES (\$ MILLIONS)	SHARE (%)
France	1,825	19
Germany	2,455	25
U.K.	1,225	12
Italy	1,305	13
Netherlands	539	5
Belgium/Lux*	263	3
Spain	409	4
Switzerland	378	4
Austria	216	2
Sweden	373	4
Denmark	307	3
Norway	195	2
Finland	132	1
Ireland	63	1
Portugal	50	1
Greece	23	<1
Eastern Europe	52	1
Total Information Services	9,810	100

* INPUT estimates

**Organisational
Structure**

IBM Corporation is organised in a number of units, including IBM Credit Corporation (1,120 employees) and the IBM Research Division (3,139 employees).

Manufacturing and Development

There are nine manufacturing and development businesses:

- Enterprise Systems
- Application Business Systems
- Personal Systems
- Adstar
- Pennant Systems
- Networking Systems

- Application Solutions
- Programming Systems
- Technology Products

The responsibilities of the nine business units are:

Application Business Systems develops and manufactures processors and related software for small- and medium-sized businesses and departments of large companies.

Enterprise Systems provides enterprise-wide solutions involving the development and manufacture of IBM's largest general-purpose processors, operating systems, systems software and supercomputing offerings.

Networking Systems provides products and services for operating and managing networks that deliver information electronically to users within an enterprise and externally to customers, suppliers, distributors and others.

Pennant Systems Company develops and manufactures IBM's printers and printing solutions, including advanced-function printers, software and printing services.

Personal Systems develops and manufactures personal computers and high-performance workstations and their operating systems, as well as multimedia graphics and display systems.

Programming Systems develops software for data management, office systems decision support, and application development, and the architecture for a consistent software structure across all lines of business. It also manufactures and distributes software.

Adstar develops and manufactures a range of direct access storage devices, tape drives and optical storage devices and their associated software.

Technology Products develops and manufactures logic and memory chips and electronic circuit packaging used in IBM products.

Application Solutions (AS) is the focal point for providing total solutions, consultancy and systems integration services within IBM.

Marketing and Service

Geographical cover is achieved via marketing and service units:

- North America
- Europe/Middle East/Africa*
- Asia Pacific
- Latin America

** Europe accounts for approximately 95% of revenue of this area.*

The geographical units are responsible for understanding customers' business and IT needs and to help them address them with the help of IBM's technology, services and solutions.

Where the customer is already familiar with solutions, he may want to buy boxes at the lowest price. Where he wants something unique and new, providing him with competitive edge, he will contract for a combination of products and services that deliver specified functions for a fixed price at a certain date.

Finally, he may opt to outsource his IT activities to a contractor and focus his own people on his core business.

The Marketing and Services units are organized to address any of those different levels of need. Specifically, over the last four years, more and more IBM employees have been redeployed and retrained to be able (a) to help customers define their needs and (b) to provide appropriate responses to them.

IBM's services business is organized in several distinct segments:

- Consulting
- Education
- Application Development and Delivery
- Operations Support Services
- Business Recovery Services
- Facility Management and Networking Services

Software and Services in Europe

The overall organization, in combination with the software business, is managed by Jean-Charles Levy, General Manager, Software and Services, Europe.

The holders of the following posts report in to him:

- European Director EMEA (for ITSO)
- VP Worldwide Business Transformation Consulting
- VP Worldwide Networking Consulting Practice
- Director of International Operations CE

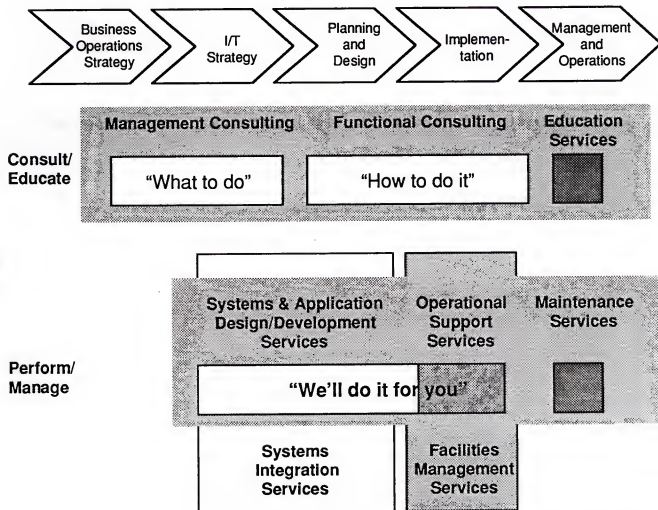
- European Director Software
- General Manager Education Europe
- General Manager Integrated Services Solutions
- European Director Customer Service

- Manager of S&S Strategies
- Director of S&S Plans and Control
- Counsel Software and Services

Worldwide Services Blueprint

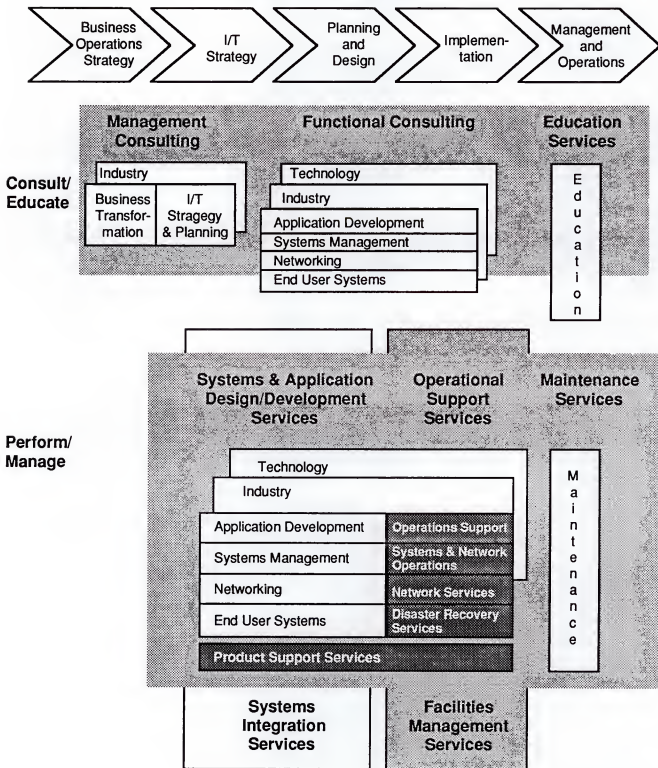
IBM has defined its concept of services in terms set out in Exhibits G and H below.

Exhibit G

Worldwide Services Blueprint

Source: IBM

Exhibit H

Worldwide Services Blueprint

Source: IBM

Acquisitions**IBM Collaboration Initiatives**

Exhibit I lists some major collaborative alliances undertaken by IBM.

Exhibit I

EXAMPLES OF IBM COLLABORATIVE VENTURES

COMPANY	DESCRIPTION
Apple/Motorola	Development agreement with Apple covering object-oriented software
Lotus	Marketing and development agreement for <i>Notes</i> and <i>cc: Mail</i> .
Wang	IBM states intention to invest \$100 million <i>June 1991</i> . Wang has agreed
Novell	<i>February 1991</i> . An agreement to market and develop networking
Coopers & Lybrand	Meritus, manufacturing marketing agreement
Thomson/	IBM has a 49% stake in this joint venture with Thomson SA to
Keon	Creation of joint venture company in Spain, to address digital
Bank Degroof	Joint company formed in Belgium to develop banking applications.
Servicios de Informacion Geografica SA	Joint venture of IBM Espana (51%) and Trabajos Catastraies Tracasa (49%) <i>December 1991</i> . Company to market geographical information products and services.
Systems Facilities	A joint venture formed in <i>June 1990</i> between IBM Nederland and for IBM mainframe systems.
Computer- Systemdienste GmbH	Joint venture between IBM Deutschland and Robotron Acosta AG to exploit systems and services opportunities in the former East Germany, <i>October 1990</i> .

Exhibit I (Continued)

EXAMPLES OF IBM COLLABORATIVE VENTURES

COMPANY	DESCRIPTION
AD/Consultants SA	Former joint venture with Cap SESA SA, now 100% IBM-owned, to provide software engineering workshop services based in AD/Cycle.
INTEXIS SA	Joint venture with Soleri-Cigel SA (51%) <i>October 1990</i> in France to offer systems integration services to financial institutions.
Tournet SA	Joint venture formed <i>November 1989</i> to offer value-added network services.
Axone	Formed in <i>1987</i> with SEMA Group and Credit Agricole, now 100% IBM-owned, to offer systems operations services.
Dannet AS	A 50/50 joint venture between IBM and the Danish Telecom to offer value-added network services.
Intesa	A Fiat/IBM joint initiative set up in <i>1988</i> to provide information services.

IBM formed the joint-venture consultancy and services company, Meritus, with Coopers & Lybrand. Initially active in the United States, it will support manufacturing companies in the consumer packaged goods, pharmaceutical, aerospace, defence and automotive industries.

IBM Espana SA took a 30% stake in a new company Keon (May 1991), capitalised at \$833,333. Other partners are Banco Bilbao Vizcaya SA (30%), Iberduero SA (30%) and Socintec SA (10%). Keon will specialise in technical software for document processing and in industrial applications based on expert systems.

IBM Belgium set up in 1991 a 50/50 joint-venture company (capitalised at \$3 million) with Bank Degroof, Finance Technology SA/NV, to operate in Belgium and Luxembourg, and to develop a modular suite of banking software for banks with less than 1,000 staff. The systems are to be based on AS/400 platforms.

Tournet SA, capitalised at \$3.7 million in November 1989 with IBM Belgium holding a 40% stake, SEMA Belgium 20% and CODITEL SA 40%. Tournet was formed to offer value-added network services to the European travel industry.

Equity Stakes

In addition to collaborative ventures, IBM has also executed a policy of taking equity stakes in existing companies. Some examples are given in Exhibit J. IBM's motivation seems to have been principally one of gaining more control over the product development policies of these companies, marketing agreements have usually existed as well for channelling software products to customers.

Exhibit J

EXAMPLES OF IBM EQUITY INVESTMENTS

COMPANY	DESCRIPTION
Dassault Systems	<i>July 1992.</i> IBM extends previous partnership with a minority stake to develop and market products for CAD/CAM/CAE application development.
Machines Bull	<i>June 1992.</i> \$100 million investment for 5.68% equity share and wide-ranging development, manufacturing and sales agreements in the open systems environment. IBM licenses Bull to develop and manufacture systems based on Power PC RISC microprocessors, and to sell IBM RS/6000 under its own brand. Bull supplies circuit boards and customized portable PCs (through Zenith Data Systems) to IBM.
CGI	<i>June 1993.</i> \$460 million investment in the form of IBM-convertible bonds to acquire as a subsidiary of IBM France this leading software and services firm specialising in CASE tools, custom application development and consultancy.
CRI	50% equity participation in this Danish application developer and systems integrator.
Industrial Computing Designs Corp.	Undisclosed majority stake taken in <i>July 1991</i>
Enator	Minority stake in Swedish-owned professional services company specialising in airline systems.
Quality Software Products	10% stake in QSP, a U.K.-based accounting applications product vendor.
Policy Management Systems	A 20% equity interest worth \$116.5 million at time of purchase - <i>July 1989.</i>
American Management Systems	\$18 millions equity stake - <i>July 1989.</i>

IBM has also developed collaborative agreements and services through IBM's marketing organisation. In practice, control over R&D policies, particularly in respect of open systems platforms, is probably frustrating the original objectives. It can therefore be expected that IBM will reverse out of many of these equity participations, placing more emphasis on joint ventures where control can be exercised through 50/50 ownership agreements.

IBM has also developed collaborative agreements to support its own R&D objectives. For example, IBM and Siemens are jointly producing the 16-megabit memory chip and share development costs for 64-megabit and (with Toshiba) 256-megabit generations.

In September 1991, IBM announced a joint development agreement with Thinking Machines, the company with the reputation of a leader in the field of massively parallel supercomputing.

The intentions are to develop links between IBM's mainframe computing environment and Thinking Machine's Supercomputers, and to undertake joint development of supercomputer software.

Key Technologies and Skills

Service and Repair IBM possesses outstanding integral strengths in service and repair. Capabilities include wide geographic coverage, an efficient parts distribution and support network, second- and third-level support personnel in branches, remote diagnostic centres and a problem/solution/fix status data base called RETAIN. IBM will support other vendors' products as well as its own.

Software Maintenance IBM has an outstanding software maintenance capability that contains most of the same support elements as hardware support, described above.

Application Design and Development IBM's federal organisation developed effective software, systems engineering and integration and test skills and practices to address federal contracts.

Systems Integration IBM's significant experience in very large federal SI projects caused it to develop a strong set of programme management practices. These practices are well documented and have been transferred through education programmes to IBM's commercial and non-U.S. SI personnel.

Software Development IBM has much experience developing complex systems software. It has less experience in applications software. Its application solution strategy is based on a variety of application packages, many developed by equity partners, that IBM will tailor to meet its clients' needs. When significant custom development is required, IBM currently looks to subcontractors who generally have a lower cost structure.

As AD/Cycle becomes available, INPUT expects IBM will use its own personnel more for developing custom software.

Education, Training and Documentation IBM has extensive capabilities in the area of technical training based on its need to train its customers on its products. Among vendors, IBM offers education across the broadest range of topics with the greatest geographic coverage. IBM has also applied advanced technology, such as satellite communications, for good, cost-effective education.

Packaged Systems Software Systems software is one of IBM's major strengths. There are few practical alternatives to the industry mainframe standards IBM has established with MVS, CICS, IMS and DB2. IBM offers effective systems software on its smaller systems; however, it still needs to solve interoperability and connectivity problems among minis, PCs and mainframes. It addresses the issue through Systems Applications Architecture (SAA) and is rapidly introducing open systems capability in all its product families.

Client/Server Computing IBM formed a Client/Server Computing business unit in late 1992, working across lines of business and geographic units, to coordinate the company's solutions in distributed, interoperable, multivendor computing environments. In Europe, the focus of activity for IBM's Open Client/Server Computing are Open System Centers (OSDs) now in operation in most countries.

Facilities Management In 1992, calling on its experience in running complex computer centers and networks, IBM entered the facilities management market in Europe. Nine 100% subsidiaries were created in which IBM Information Services (internal computing) organizations, its Information Network business and specialized FM project managers now offer outsourcing services.

Standard Computer Hardware This is a major IBM strength. It is the world leader in terms of the breadth and depth of its product line. This advantage has, at times, been eroded, as highly focused companies such as Apple, SUN and Tandem produced superior products. While IBM's offerings have, in the past, suffered from lack of compatibility and poor connectivity, new families of products - PS/2, AS/400, System/390 and SAA - have placed IBM in a strong competitive position.

IBM will almost always bid its own hardware. Exceptions are made where it lacks specialised hardware components, where it does not have a product, where its product does not meet specifications or where the customer has specified another vendor's equipment. IBM negotiates with other computer industry vendors to add non-IBM products where it does not have a product that is required by the IBM customer.

Original Equipment Manufacture IBM has entered the OEM market in a decisive way, offering a wide range of products (some of which may not yet be incorporated into its own systems)-- from high-end magnetic storage devices, through PC components, to networking software.

Custom computer hardware and software IBM develops industry-specific systems and application software modifications. Two examples illustrate the activity:

- a) The IBM Touchmobile is a hand-held data collection and communication system designed primarily for mobile workers in the transportation industry. Pen-based, with a touch screen and portable, it contains a laser scanner to record bar codes on merchandise, and can transmit to or receive data from a central point.
- b) IBM Retail Application/DOS enables single-unit and small store chains to automate, track and report point-of-sales tasks such as price changes and inventory management, capabilities previously available only to large retail establishments.

Communications Hardware IBM offers a limited series of communications controllers, modems, multiplexers and diagnostic units.

Strategic Analysis

(a) Company Direction

In January 1993, IBM Chairman John Akers announced he would step aside. The board of directors conducted an intensive two-month search, which resulted in the appointment of the first chief executive from outside the company. Previously chairman of RJR Nabisco, a U.S. tobacco and food giant, Louis V. Gerstner, Jr. took over as Chairman and CEO of IBM on April 1, 1993. He had earlier served as president of American Express and was a director of the U.S. management consultancy, McKinsey & Co.

At the beginning of 1992, IBM set in motion comprehensive changes to redefine IBM from a single, centralised company to a network of more competitive businesses.

It aims to increase the independence of its manufacturing and development businesses and also its marketing and service companies. Each business will be more focused and responsive to its market. At the same time, these businesses and companies will remain linked and able to draw upon the full range of IBM's technological and financial resources.

The marketing and services companies will focus more on market selection and consulting services and will offer products and services from IBM, combined with, as appropriate, those from other companies to provide integrated solutions tailored to customer needs.

The manufacturing and development units will optimise product manufacturing and development and sell their products to other manufacturers.

Through its increasingly segmented organization, IBM is trying to provide solutions for all vertical industries as well as cross-industry applications. Its strategy is to team up with software developers and integrators that have known capability in the different vertical markets while building its own application knowledge and software portfolio. IBM's equity investment in key software developers also supports this objective.

IBM is also expanding the career paths for its services specialists by adding five categories of professions: client executive, consultant, architect, project manager and opportunity manager.

This aims at improving and motivating employee commitment and ultimately, customer satisfaction.

i) Consulting

Business Consulting - IBM's consulting capability is strongest in technology areas and weaker in vertical industry applications. The company is making a conscious effort to strengthen the latter by hiring professionals with experience who add business consulting capability in vertical industry markets. IBM recently hired experienced business consulting professional Robert M. Howe from Booz, Allen & Hamilton as General Manager, Consulting Practices and Operations. One disadvantage IBM has as a consultant is its perceived lack of solution objectivity, and this is most likely true.

IBM's current services strategy is formed around three types of offerings: business consulting, application and systems development, and operational management. There are now more than 100 IBM application and system centres worldwide, as well as a worldwide services council for ensuring consistency and quality in IBM's key services offerings.

ii) Geographic Coverages

IBM's geographic coverage is arguably the strongest in the industry, with good coverage of all the major national markets.

iii) Partnerships

IBM has hundreds of alliances with marketing assistance partners (MAPs), system integrators and other partners, examples of which are discussed above under the sub-section Collaboration Initiatives.

(b) Strengths and Weaknesses*(i) Strengths*

IBM possesses impressive strengths that cannot be overlooked:

The company has excellent technical skills, the broadest geographic coverage of any vendor, a strong federal Systems Integration background, and a full range of alliances with excellent team partners and subcontractors.

Over the last two years, IBM has made significant strides to improve its vertical industry capabilities. Through a worldwide applications solution focus, it is developing templates for vertical industry application requirements. These templates will ultimately become input to IBM's AD/Cycle and PACBASE products, and permit IBM to tailor customer-unique solutions very competitively.

- IBM has an immense customer base. On a worldwide basis, it includes the largest companies in every industry sector.
- IBM has a strong base of internal systems integration skills.
- IBM's ability to invest in applications solutions is tremendous. The ability to invest in developing replicable solutions may prove critical in the SI market. IBM has established the organisation and resources to accomplish this.
- With its broad and widely accepted product lines, large customer base and immense investments in technology, IBM has the ability to attract a broad range of third parties that are willing to be partners, team partners and subcontractors. IBM has literally hundreds of these alliances in place today.

(ii) Weaknesses

IBM has several areas of weaknesses, although it is aware of most of its limitations and is taking action to correct them.

- IBM's broad product line, in many areas, suffers from incompatibility and lack of connectivity. This is one of the major reasons that IBM originally established an Systems Integration capability and is implementing SAA. Solving this problem will result in a stronger product line but, at the same time, eliminate some of the need for systems integration.
- IBM has traditionally had a very distinct preoccupation with hardware products. While it has become more market-driven and is addressing its clients' needs through its wide range of services, it has yet to prove that it can successfully bring together SAA, AD/Cycle and its vertical industry architectural templates.
- The marketing organisation must learn and accept a new direction and set of skills. Its traditional orientation emphasises the sale of products, not solutions. The sales organisation is used to immediate results based on product shipments, not long-term returns based on lengthy programme development and implementation cycles. IBM has revised its sales incentives to place equal emphasis on services and products, yet it remains to be seen if the sales organisation will respond to this change in emphasis.
- It is clear that customers are looking for industry knowledge and application expertise. IBM, because of its broad customer base, is attempting to develop expertise in all industries. There is still a question whether IBM, regardless of its size and resources, can attract the talent required to achieve this ambitious goal in the near term.

(c) Conclusions

IBM has clearly recognised the need to be market-driven and to develop and market solutions rather than products. This major transition will continue as long as IBM sees this as the only option in maintaining its market position. While some aspects of this strategy may change, the thrust is expected to continue.

INPUT also believes that IBM will continue to focus on developing replicable solutions to leverage its development investment and reduce the skill requirements and risks associated with one-of-a-kind SI engagements. INPUT also believes that IBM will continue to focus more on internal training and tools to improve the productivity of its personnel. It will also depend on its AD/Cycle applications development and maintenance strategy to make it much more competitive in the professional services and systems integration arena.

**Strategic
Assessment**

IBM as the world's largest computer company has suffered recently the most severe setbacks to its growth ambitions of all the major systems vendors. Ever since the middle of the 1980s (at its employment peak) it has been attempting to adjust and adapt its vast organisational structure to rapidly changing market conditions. It just has not been able to move fast enough to succeed in staying ahead of the trends.

Restructuring, a proliferation of alliances, joint ventures and share ownership of software and services vendors have all been employed in an attempt to extend its sphere of influence and to shore up its core product-based revenue streams.

IBM's past strategy, enabled by its size and ability, was to establish and maintain account control and set standards, causing customers to remain close to the IBM product line. But IBM has not always had the right product at the right time, and often the products provided weren't designed or the software wasn't available to make them work well together. Customers were often frustrated and angered by this approach, and competitors made serious inroads into IBM's customer base. The adoption of a Systems Integration capability including a willingness to integrate non-IBM sourced equipment has undoubtedly had significant success in reversing this customer dissatisfaction.

The closeness of the SI vendor to the customer ensures that IBM's software and services organisation has a source of market intelligence on emerging requirements. The residual application and industry experience gives IBM a strong sense of what the customer wants and needs. The company expects to turn this experience into the vertical and cross-industry products that it can replicate across a broad range of customers. Some products will be off-the-shelf and others will require tailoring and offer the opportunity for SI or professional services implementation revenues as well. This strategy could also result in IBM becoming a much larger player in the turnkey market, where it enjoys limited participation today.

IBM is expected to merge its systems integration units and capabilities back into its distributed sales and services organisation. SI is no longer seen as the exception in dealing with solutions, it is now normal practice in designing and delivering what major customers want.

COMPANY PROFILE

ING C OLIVETTI & C. S.P.A.

Corporate Headquarters
Via Jervis 77
10015 Ivrea
Italy
Tel: 39 1255200

Chairman: Carlo de Benedetti
Status: Public
Number of Employees: 40,401 (worldwide)
31,080 (Europe)
Revenue (FYE 31-12-92)
Worldwide: 8,026 Lire Billions
Europe: 6,662 Lire Billions

The Company

Olivetti is a leading European-based information technology group. It is active at the forefront of the computer and office automation industries, with products ranging from personal computers and minicomputers to specialized workstations and office equipment and software.

Olivetti was founded in 1908 at Ivrea by Camillo Olivetti and the company became famous in the 1920s as the first Italian manufacturer of typewriters. In the 1960s the company transformed its production activity to include electronic technologies alongside the traditional mechanical processes: in 1978 it was the first company in the world to present an electronic typewriter. In the 1980s it was the first European company to enter the information technology field with products like the M24 personal computer, minicomputers and networks. In 1987 Olivetti was among the first major international producers to announce its adherence to open systems when it launched OSA (Open Systems Architecture), a technological platform that encompasses the leading industry standards and is the basis of Olivetti's systems offerings.

The group employs some 40,000 people and has 19 Research and Development locations in eight countries and nearly 20 production facilities around the world. Commercial subsidiaries and a technical assistance organization operate directly in 32 countries through 4,500 dealers and 1,000 Systems Partners, and a network of agents is active in 90 countries where subsidiaries are not present. Its multi-vendor maintenance services have been particularly successful outside Italy.

INPUT LIBRARY

The Olivetti Group has significant holdings in over 200 companies in the information-technology field and related sectors (components, tooling, engineering, etc.). Its most important foreign subsidiaries include TA Triumph Adler AG in Germany (typewriters, videotyping systems, personal and portable computers); Acorn Computers Ltd. in the U.K. (personal computers for education); U.S.-based ISC/Bunker Ramo, through which Olivetti rank second on the U.S. branch banking-automation market; and the Scanvest Olivetti in Norway, one of Scandinavia's largest information technology suppliers.

Financial Information

Exhibit A

OLIVETTI GROUP, FIVE-YEAR FINANCIAL SUMMARY (FYE 31/12)

	1988	1989	1990	1991	1992
Revenues (Lire Billions):	8,407.4	9,031.2	9,036.5	8,607.1	8,026
Annual Growth Rate %	14	7	.05	(5)	(7)
Gross Profit (Lire Billions)	-	-	3,185.3	2,809.5	-
Annual Growth Rate %	-	-	-	(11.8)	-
Profit after Tax (Lire Billions)	-	-	60.4	(459.8)	(652.0)
Annual Growth Rate %	-	-	-	(861)	(42)
European Revenues (Lire Billions)	7,324	7,562	7,562	6,050	6,662

The above summary is for the whole of the Olivetti group.

**Market
Analysis****Exhibit B****1991 MARKET ANALYSIS BY GEOGRAPHIC REGION**

GEOGRAPHIC REGION	REVENUES* (LIRE BILLIONS)	PERCENT
Italy	3,276.7	38.1
Germany	743.3	8.6
France	619.3	7.2
U.K.	615.2	7.1
Others	1,832.1	21.3
TOTAL EUROPE	7,086.6	82.3
Japan	309.0	3.6
Other Far Eastern Countries and Africa	422.5	3.6
TOTAL	731.5	8.5
North America	522.7	6.1
Latin America	266.3	3.1
OVERALL TOTAL	8,607.1	100.0

*Source: Olivetti Group***Note: Total Group Revenues***Exhibit C****1991 MARKET ANALYSIS BY BUSINESS ACTIVITY
(LIRE BILLIONS)**

ACTIVITY	REVENUES* (LIRE BILLIONS)	PERCENT
Products	2,608	32.5
Systems	2,986	37.2
Services	2,215	27.6
Other	217	2.7
TOTAL GROUP	8,026	100.0

*Source: Olivetti Group***Note: Total Group Revenues*

INPUT estimates that 1992 software and service revenues for Olivetti in Europe amounted to \$1,020 million. Total 1992 European Information Service revenues including equipment services revenues are estimated by INPUT to have reached \$1,760 million. Exhibits D, E and F provide a breakdown of these European revenues by INPUT classifications.

Exhibit D

ESTIMATED REVENUES BY INDUSTRY SECTOR, SOFTWARE AND SERVICES, EUROPE - OLIVETTI, 1992

	REVENUES (\$ MILLIONS)	SHARE (%)
Industry Sectors:		
Discrete Manufacturing	215	21
Process Manufacturing	55	5
Transportation	35	3
Utilities	20	2
Retail Distribution	85	8
Wholesale Distribution	55	5
Banking and Finance	100	10
Insurance	30	3
Local Government	45	4
National Government	95	9
Business Services	45	4
Other Industries	10	1
Cross-Industry Sectors:		
Accounting	10	1
Education & Training	10	1
Engineering & Scientific	10	1
Human Resources	10	1
Office Systems	95	9
Planning & Analysis	10	1
Systems Software Products	95	9
Total Software and Services	1,020	100

*INPUT estimates

Exhibit E

**ESTIMATED REVENUES BY DELIVERY MODE, SOFTWARE AND SERVICES,
EUROPE - OLIVETTI, 1992**

DELIVERY MODE	REVENUES (\$ MILLIONS)	SHARE (%)
Systems Software Products	95	2
Application Software Products	125	3
Turnkey Systems	185	4
Professional Services	410	8
Systems Integration	85	2
Systems Operations	50	1
Processing Services	50	1
Total Software and Services	1,020	21
Equipment Services	740	15
Total Information Services	1,760	36
Equipment/Other Revenues	3,095	64
Total European Revenues	4,855	100

**INPUT estimates*

Exhibit F

ESTIMATED REVENUES BY COUNTRY, INFORMATION SERVICES, EUROPE -
OLIVETTI, 1992

COUNTRY	REVENUES (\$ MILLIONS)	SHARE (%)
France	205	12
Germany	130	7
U.K.	220	13
Italy	735	42
Netherlands	54	3
Belgium/Lux'	75	4
Spain	109	6
Switzerland	30	2
Austria	18	1
Sweden	6	<1
Denmark	64	4
Norway	51	3
Finland	13	1
Ireland	5	<1
Portugal	26	1
Greece	8	<1
Eastern Europe	9	1
Total Information Services	1,760	100

*INPUT estimates

**Organisational
Structure**

Olivetti's streamlined organisational structure is designed for responsiveness to changing market demands and optimisation of production and managerial cost structures. The group is divided into three principal operating divisions that correspond to the major business areas in which Olivetti is engaged: Central Operations, Diversified Activities, with support activities provided by central staff, and Olivetti Information Services (OIS).

Central Operations includes two units: Industrial Operations, which is responsible for designing, developing and producing the entire Olivetti product offer; and Marketing of Services, which oversees the commercialisation and distribution of solutions and services based on OSA.

Diversified Activities, Planning and Development plans and coordinates the various technological and commercial development programs of the company, in particular those related to Triumph Adler, Acorn, Teknecomp (components), Synthesis (office furniture) and Omnitel (Cellular telephones).

Public Authorities coordinates the strategic and commercial development of Olivetti's presence in the central and local public administration sectors in Italy, and the company's participation in national and regional programs for industrial investments in southern Italy.

Olivetti Information Services in Italy offers computer services for business users: software value-added network services, voice/data services and managerial consulting and training.

Key Products and Services

Olivetti categorises its offerings into three product areas. These are:

- Products
- Systems
- Business Services

Products

Olivetti is a leading manufacturer of PCs and minicomputers. It supplies mid-range systems, PC-based workstations and computing peripherals including printers and terminals. In 1991, Olivetti entirely renewed its PC offer, with a new family of portable PCs, 'Olivetti 1'. For the Italian market Olivetti offers a broad range of mainframes.

Systems

In the software and services sector, Olivetti has broadened considerably the range of optimised solutions available for its hardware architecture, through its product offerings and a wide network of technological agreements. The strengthening of the Olivetti Systems Partner network was an important factor in building up Olivetti's range of applications.

Olivetti's products and services are built around its Open Systems Architecture (OSA), which is an integrated architecture containing reference standards, technologies, added value services and products which interconnect to make a complete system offer. Olivetti offers specialised software products and solutions within the OSA framework.

Product offerings include:

- Systems software
- Applications software
- CASE tools
- Network and system management applications.

Olivetti recently announced its integrated CASE tools (I-CASE) range, designed to automate banking applications development for open systems.

The tools are aimed at helping branches to build competitive applications that take advantage of recent re-regulation, quickly and at lower costs than using traditional methods.

According to Olivetti, there is a banking applications backlog of between 2 and 4 years. Olivetti's I-CASE tools shorten development time by offering visual programming technologies, navigation tools and customisable building blocks.

Using a choice of standard GUI's (Graphical User Interfaces, such as OS/2 Presentation Manager and MS Windows) and running on client/server architecture, Olivetti's Open CASE incorporates the Envision upper CASE tool. Lower CASE tools feature A2B, Olivetti's new Application Builder tool, as well as DME and Visual Form. The shared Open Systems Architecture Repository, which supports OS/2 and UNIX SVR4.0, ensures data integration across upper and lower CASE tools.

Another recent product is Olivetti's Departmental Management Centre (DMC) solution for network and system management on the Olivetti ISX 5000 line of systems based on UNIX system V Release.

Olivetti's DMC makes use of Digital Equipment Corporation's software technology by building on an open standards-based platform to provide customers with advanced management solutions. These can effectively manage, through an integrated and consistent approach, all aspects of distributed, heterogeneous computing.

The new DMC product also integrates Olivetti's existing management offering. These will evolve to provide scalable departmental and enterprise level solutions within the Olivetti Open Systems Architecture Network and System management profile.

Business Services

Olivetti's newly formed Business Services area will focus on expanding the company's presence in the two product areas mentioned, Products and Systems.

The Olivetti Group also has a dedicated unit, Olivetti Information Systems (OIS), which specialises in a wide range of software and service activities, including consultancy training and systems development. OIS operates primarily in the Italian market, where it is one of the leading software and service vendors.

OIS operates through a number of subsidiaries, each of which specialises in a particular market or sector. It is also involved in the Software Engineering Research Centre, a joint project formed with a number of large companies and banks in Italy.

Company Strategies

(a) Company Direction

Olivetti's strategic objective is to meet the market challenge of the 1990s as an innovative organisation, capable of providing users with a flexible, open response as their needs change. In particular, Olivetti intends to consolidate its double market role as a product supplier and a solution provider, supplying standard products, services, systems integrated skills and related offerings.

To achieve this, Olivetti is taking steps to boost innovation in its offerings, restructure its organisation in line with market trends, reduce costs and control cash flow. The first measures were launched in 1991 and further action is being taken in 1992. The objectives of the corporate re-organisations were to streamline structures, reduce the number of management levels, introduce corporate models permitting greater reactivity to market and technology trends and concentrate resources on research, application development, marketing and services, with particular emphasis in the most strategic geographic markets.

Olivetti views achieving the specific objectives of its 1992 company plan as vital to recovering the level of competitiveness needed to keep pace with current trends in the IT industry.

(b) Strengths and Weaknesses

Olivetti's main strengths can be summarised as follows:

- Established vendor
- Capacity for Innovation
- Extensive Sales and Support Organisation
- Wide-ranging network of alliances
- Commitment to Research and Development.

One of Olivetti's main strengths is its position as an established vendor. The company was founded in 1908 as a manufacturer of typewriters and was the first company in the world to present an electronic typewriter in 1978. It also has a strong capacity for innovation with the development in the 1980s of its M24 PC and its minicomputers and networks. It was also among the first of the equipment vendors to announce commitment to open systems when it launched its Open Systems Architecture in 1987.

A major factor in the Olivetti Group's success has been and continues to be its strong commitment to research and development. Investments over the two-year period 1987-1991 amounted to Lire 2,300 billion and approximately 3,800 people working in the group's R&D laboratories around the world. In addition, the proportion of R&D spending to hardware and software product revenues doubled from 4% to 8% in the period from 1979 to 1991.

The Olivetti Group has a direct sales and support organisation active in 32 countries and a network of more than 5,500 systems partners and dealers. It operates through agents in 90 other countries where no sales subsidiary is present. The direct sales organisation is subdivided into five geographical commercial areas and works with dedicated units in specific vertical markets such as finance, public authorities and retail.

Olivetti has another strength in its extensive network of alliances with technology leaders such as Intel, Microsoft, Novell, Andersen Consulting, Digital, Informix and Oracle. Olivetti has been building up its alliance network for over a decade. Its most recent alliance has been with Digital for advanced joint R&D work.

The main challenge facing Olivetti is to establish a clear identity in the software and services market. Olivetti Information Systems is a large vendor in European terms but operates in the Italian market and has little activity outside its domestic borders. Olivetti is very product-oriented elsewhere in Europe and hence is not perceived as a software and services company. It needs to enhance its visibility in this sector, perhaps an acquisition strategy or movement of the OIS capability into Europe.

(c) Conclusions

Olivetti has a strong record of financial performance, but like its competitors has been affected by the slow-down of the computer industry in Europe. To improve its profitability, it is in the process of effecting a vigorous programme of structural re-organisation and staff reduction.

During 1992, OIS strengthened the operating revenues of its subsidiaries. The reduction in the overall group revenues was attributable to lower sales in hardware product revenues.

Olivetti Group was confident that its re-structuring and streamlining programme would enable it to perform better in 1992 and beyond. But the depth of the recession was underestimated.

Olivetti aims to move more towards the software and services market, where it sees its future in integrated solutions. It has a track record as a ground breaker and has the added advantage, unlike other systems vendors making the transition, of not being tied to an installed base of proprietary systems. If it can contain costs and promote a more visible image of its direction in the software and services market, Olivetti should be equipped to keep pace with the overall development of the market.

Olivetti has established a lead in the niche market of multi-vendor maintenance in Europe. INPUT expects the company to continue to develop this business successfully even though many other equipment vendors have now recognised the rising market demand. In particular the popularity of open systems is creating major opportunities for those as skilled in managing multi-vendor maintenance contracts as Olivetti.

In 1992 Olivetti shed 15% of its staff. The number of employees fell by over 6,000 worldwide. It seems that such restructuring will need to continue if the company is to create the profits with which to invest in building its software and services activities. These secondary activities still serve the product business. It seems likely that the only services business which Olivetti will develop independently of the product side is the multi-vendor maintenance initiative.

COMPANY PROFILE

INTERGRAPH EHQ (European Headquarters)

P.O. Box 333
2130 AH Hoofddorp
The Netherlands
Tel: 31 2503 66 333
Fax: 31 2503 66 414

Executive Vice President: Manfred Wittler
Status: Subsidiary (LLC)
Number of Employees: 1,900 (Europe)
Revenue (FYE 31-12-92): \$ 447 million
(Europe)

INTERGRAPH CORPORATION Corporate Headquarters

One Madison Industrial Park
Huntsville
Alabama 35894-0001
U.S.A.
Tel: (205) 730 2000
Fax: (205) 730 2461

CEO: James W. Meadlock
Status: Public (OTC NASDAQ)
Number of Employees: 10,300 (Worldwide)
Revenue (FYE 31-12-92): \$1,177 million,
(Worldwide)

The Company

Intergraph Corporation of the U.S. was originally incorporated in 1969 as M&S Computing Inc., a software consultancy, with Jim Meadlock as one of the founders. In 1973 it started to offer complete interactive graphical systems constructed around the Digital PDP-8 computer, mainly aimed at digital mapping applications.

The company has for almost 25 years provided computer graphics solutions to a variety of industries. It considers itself a *"total solutions supplier"* to the technical markets it serves and designs, manufactures, markets and supports interactive computer graphics systems, including hardware and application software.

Since the early 1980s Intergraph has ceased to rely on Digital hardware, progressing to a UNIX-based platform of own manufacture, whilst still maintaining compatibility with Digital hardware.

In addition, the company provides a variety of third-party packages, increasing its software offerings in technical applications, networking, database management and software development tools.

Intergraph Europe, Inc. in the Netherlands, previously the European regional headquarters, has been formally dissolved with all European offices established independently. There is still a

European headquarters activity (EHQ) in the Netherlands providing European coordination and support but individual country offices are largely autonomous.

Intergraph has European offices in Austria, Belgium, Denmark, Finland, France, Germany, Greece, Hungary, Ireland, Italy, the Netherlands, Norway, Portugal, Spain, Sweden, Switzerland, Turkey and the UK.

Since 1991 Intergraph has opened offices in Czechoslovakia, Hungary, Poland, Russia and former East Germany to position itself for emerging business in the former Eastern Bloc.

Intergraph also has offices in the US., Canada, Latin-America, Asia and the Middle East.

Financial Information

Intergraph worldwide revenues in 1992 were \$1,177 million, marginally down on 1991's \$1,195 million. Although 1991 had reversed the decline in profits suffered in the preceding two years, 1992 showed a marked reduction, down by 88% to only \$12 million.

European revenues accounted for \$447.1 million, up by 11.6% from \$400.7 million, maintaining an unbroken revenue growth record in Europe.

(Note: Examination of the 1992 Accounts shows that the US and Europe made positive contributions to Income from Operations, whereas other regions had a significant negative impact. However, an overall positive worldwide Net Income from Operations was transformed into a loss prior to tax solely due to foreign exchange losses and interest expenses.)

Exhibit A below shows the 5-year financial history of Intergraph

Exhibit A

FIVE-YEAR FINANCIAL SUMMARY FOR INTERGRAPH CORPORATION
(FYE 31-12) (WORLDWIDE REVENUES)

YEAR	1988	1989	1990	1991	1992
Revenue (\$M)	800.2	860.1	1,044.6	1,195.4	1,176.7
Annual Growth Rate (%)	25	7	21	14	(2)
Profit before Taxes (\$M)	138.8	119.3	98.3	111.9	12.4
Annual Growth Rate (%)	20	-14	-18	14	(89)
Profit after Taxes (\$M)	88.0	79.5	62.6	71.1	8.4
Annual Growth Rate (%)	26	-10	-21	14	(88)
EPS (\$)	1.55	1.48	1.28	1.47	0.18
European Revenues	232	281	343	401	447
Annual Growth Rate (%)	25	21	22	17	12

Source: Intergraph Annual Reports

Market Analysis

Exhibit B

1992 MARKET ANALYSIS - INTERGRAPH CLASSIFICATION

	Revenues (\$ Millions)	Percent
Systems	796	68
Services	381	32
TOTAL	1,177	100

Source: Intergraph Annual Report

Exhibit C

1992 MARKET ANALYSIS BY GEOGRAPHIC AREA

GEOGRAPHIC AREA	REVENUE (\$ MILLIONS)	PERCENT
U.S.	577	49
Europe	447	38
Other	153	13
TOTAL	1,177	100

Source: Intergraph Annual Report

Exhibit D

**Estimated Revenues by Industry Sector, Software and Services, Europe
Intergraph, 1992**

	REVENUES (\$ MILLIONS)	SHARE (%)
Industry Sectors:		
Discrete Manufacturing	145	40
Process Manufacturing	50	14
Utilities	5	1
Telecommunications	5	1
Local Government	5	1
Business Services	5	1
Other Industries	15	4
Cross-Industry Sectors:		
Engineering & Scientific	100	28
Systems Software Products	35	10
Total Software and Services	360	100

Source: INPUT estimates

Exhibit E

**Estimated Revenues by Delivery Mode, Software and Services, Europe
Intergraph, 1992**

DELIVERY MODE	REVENUES (\$ MILLIONS)	SHARE (%)
Systems Software Products	35	8
Application Software Products	35	8
Turnkey Systems	290	66
Total Software and Services	360	81
Equipment Services	80	18
Total Information Services	440	99
Equipment/Other Revenues	5	1
Total European Revenues	445	100

Source: INPUT estimates

Exhibit F

**Estimated Revenues by Country, Information Services, Europe
Intergraph, 1992**

COUNTRY	REVENUES (\$ MILLIONS)	SHARE (%)
France	50	11
Germany	140	31
U.K.	80	18
Italy	25	6
Netherlands	31	7
Belgium/Lux	9	2
Spain	27	6
Switzerland	13	3
Austria	4	1
Sweden	27	6
Denmark	9	2
Norway	9	2
Finland	13	3
Portugal	4	1
Total Information Services	445	100

Source: INPUT estimates

Note: Includes Hardware Maintenance revenues.

Organisation

As of December 1992 Intergraph employed 1,900 staff in Europe, a slight reduction on the year-end 1991 figure of 2,045. Worldwide staff numbers remained static at 10,300

An analysis of 1992 headcount by country is not available, but the 1991 breakdown shown in Exhibit G below provides an indication of the relative scale/size of operations country by country:

Exhibit G

1991 EMPLOYEE CHART BY EUROPEAN COUNTRY

COUNTRY	NUMBER OF EMPLOYEES
Austria	15
Belgium	25
Denmark	30
Finland	40
France	185
Germany	500
Italy	100
Netherlands	450
Norway	45
Portugal	25
Spain	110
Sweden	75
Switzerland	50
U.K.	360
Czechoslovakia	10
Poland	10
Hungary	5
Greece	5
Russia	5
TOTAL	2,045

Key executives based in the Netherlands are currently as shown in Exhibit H:

Exhibit H

KEY EUROPEAN EXECUTIVES

NAME	POSITION
Manfred Wittler	Executive Vice President Sales & Support
Chris Verwoert	Director Marketing
Bas Baker	Director Industry Sales
George Dziedzic	Director Indirect Sales
Paul Kuijtmans	Director Product Marketing & Support

During 1992 Intergraph put into place a pan-European industry sales organisation in response to a growing demand for industry-specific applications.

The **direct** sales force focusses on nine specific industries:

- Government/Defence
- Process
- Vehicle
- Publishing
- Building
- Electronics
- Transportation
- Manufacturing
- Utilities/Geographic Services

The **indirect** sales channel has recently grown in importance and numbers over 500 "Business Partners", qualified to sell MicroStation and basic applications software. Of these, 200 are also capable of selling Intergraph hardware and advanced applications.

Intergraph's Value-Added Services (VAS) organisation provides hardware and software in combination with consultancy and development services and provides:

- project implementation
- customisation
- systems integration
- training
- maintenance

Recent Acquisitions/ Alliances

In March 1989, Intergraph exchanged its 82% ownership in Tangent Systems Corporation for shares of Cadence Design Systems. It subsequently disposed of this investment during 1990/91.

In December 1990 Intergraph acquired for, \$14 million, the Daisy Systems Corporation and its wholly owned subsidiary Daisy/Cadnetix Inc. (DAZIX). DAZIX is engaged in the design, manufacture, marketing and service of electronics design automation (EDA) software and hardware tools. This has now been fully integrated into Intergraph's operations.

During 1992 the company made three minor acquisitions totalling \$25.5 million and acquired minority interests in six others to the value of \$19.4 million.

Recent alliances include:

Intergraph and IEZ AG, German-based supplier of systems to the AEC (Architecture, Engineering and Construction) markets, announced a strategic alliance to develop, sell and support jointly Intergraph MicroStation-based software for the AEC. IEZ, with its SPEEDIKON product, is a leading developer and supplier of UNIX-based AEC applications in Central Europe and, more recently, elsewhere in Europe and the Far East. The alliance has worldwide scope for both direct and indirect sales channels.

An agreement was announced between Intergraph and Andersen Consulting, whereby the two players are to *"pursue sole-source and competitive business for each other in the worldwide utilities industry"*. This involves positioning WORK/I, Andersen's advanced work management information system and FRAMME, Intergraph's facilities information management solution as the *"preferred solution for distribution management needs"*. A major focus of the agreement is the development of fast track project evaluations and jointly sponsored pilot programs.

Intergraph acquired from Norsk Data GmbH its computer-aided design (CAD) business, shortly followed by acquisition of the exclusive rights to the Technovision mechanical design software and its associated sales, support and service operations. This purchase gave Intergraph one of the leading 2D design and documentation systems in the German market together with an existing customer base of almost 300 installations.

A strategic partnership with Control Data (CD) involving a joint marketing and technology agreement in the mechanical design/automation market.

British Maritime Technology (BMT) and Intergraph have recently announced a strategic alliance dedicated to the development, marketing and support of CAD/CAE/CAM technology in the maritime industry worldwide.

A chemical and food industry consortium consisting of BASF, Bayer, and Hoechst have formed a partnership with Intergraph to produce a specification of a customerised version of Intergraph's Plant Design System Instrumentation (PDS-IN) and is expected to lead to large-scale adoption in the German and Swiss chemical and food industries.

Intergraph has agreed with Microsoft that it will port its entire family of GIS applications to the Windows NT platform, making

Intergraph the largest independent development site for Windows NT.

Major Recent Projects

Examples of applications supplied in Europe are as follows:

- Modular GIS Environment software to the City of Prague for municipal information management.
- Vehicle Repair and Maintenance Information System (VERAMIS) to KLM Royal Dutch Airlines to manage and control aircraft repair information.
- InRail and ModelView to Stuttgart Strassenbahn for design and visualisation of new track for a light rail transport system.
- InRail to Swiss Rail and Swedish National Rail Administration for 3D track design and maintenance.
- A custom system to the Royal Dutch Navy for the design, maintenance and management of navy vessels and weapon and sensor systems.
- Environmental Resource Management Applications (ERMA) systems to the British Geological Survey for toxic waste survey and analysis work.
- A GIS system to the UK National Rivers Authority for coastline erosion analysis in a sea defence and tides signalling project.
- Automated mapping and facilities management (AM/FM) systems to France Telecom for large-scale cable network management project involving multiple sites.
- A GIS to the Danish National Survey and Cadastre under a \$3.5 million contract as part of a land information system.
- A map publishing system to SPOT Image (France) to automate the production of image maps in the satellite data distribution market.

Key Products and Services

The product/market segments addressed by Intergraph are summarised in the matrix shown in Exhibit I below:

Exhibit I

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INDUSTRIES		Government	Utilities	Transport	Process	Building	Manufacture	Vehicle	Electronics	Publishing
PRODUCTS										
MAPPING/GIS	Data Gathering	-	-	-	-	-	-	-	-	-
	GIS	-	-	-	-	-	-	-	-	-
	Cartography	-	-	-	-	-	-	-	-	-
IMAGING		-	-	-	-	-	-	-	-	-
DISPATCH MANAGEMENT		-	-	-	-	-	-	-	-	-
UTILITY SYSTEMS		-	-	-	-	-	-	-	-	-
AEC	Architecture & FM	-	-	-	-	-	-	-	-	-
	Civil/Structural	-	-	-	-	-	-	-	-	-
	Plant Design	-	-	-	-	-	-	-	-	-
	Electrical Eng	-	-	-	-	-	-	-	-	-
MECHANICAL	Design	-	-	-	-	-	-	-	-	-
	2D Engineering	-	-	-	-	-	-	-	-	-
	Engineering	-	-	-	-	-	-	-	-	-
	Manufacturing	-	-	-	-	-	-	-	-	-
ELECTRONICS	Design	-	-	-	-	-	-	-	-	-
	Simulation	-	-	-	-	-	-	-	-	-
	Layout	-	-	-	-	-	-	-	-	-
PUBLISHING SYSTEMS	Technical	-	-	-	-	-	-	-	-	-
	Graphic Arts	-	-	-	-	-	-	-	-	-
TECHNICAL INFO MANAGEMENT	Document Mgt	-	-	-	-	-	-	-	-	-
	Database/Access	-	-	-	-	-	-	-	-	-
GENERICS	MicroStation	-	-	-	-	-	-	-	-	-
	Raster	-	-	-	-	-	-	-	-	-
SYSTEMS	Workstations/Servers	-	-	-	-	-	-	-	-	-
	Peripherals	-	-	-	-	-	-	-	-	-
	Networking	-	-	-	-	-	-	-	-	-
	Remote Access	-	-	-	-	-	-	-	-	-
SERVICES	Value-Added Systems	-	-	-	-	-	-	-	-	-
	Remedial Services	-	-	-	-	-	-	-	-	-

Company Strategies

Company Direction

Intergraph has spent approaching 25 years developing computer graphics solutions predominantly for the following industries:

- Automotive
- Aerospace
- Transportation
- Mapping
- Publishing.

1992 was a difficult year for the corporation, with revenues, margins and earnings all in decline, although its European operations were more successful.

The company has now undergone a complete restructuring along customer industry lines. The direct sales force is segmented worldwide into the nine key industry groupings described in the Organisation section earlier in this profile.

Intergraph's Mission stresses solutions and customer satisfaction elements which have become keystones of Intergraph's strategy:

"Our Mission is to be the leading full-service supplier of open and integrated computer graphics solutions, focusing on technical applications in select government and industry sectors. We are dedicated to the satisfaction and success of our customers. We do this best by concentrating on the needs of customers in the utilities, transportation, process, building, manufacturing, vehicle, electronics, and publishing industries, as well as governments at all levels"

Key in this is the concept of "industry workflow solutions" and the promotion of the systems integration capabilities of the company. Intergraph sees two broad types of customer: the large customer with complex needs where Intergraph can bring its systems integration strengths to bear in developing a unique solution. Small to medium-sized customers, who have less complex needs, require modular solutions, re-packaged and at a competitive price. This Intergraph sees as a worldwide volume market, to be addressed through indirect channels, referred to as "Business Partners". These include dealers, distributors, solutions resellers, and value-added resellers. Intergraph positions these agents as "Intergraph Solution Centres" and sees them as highly significant, forecasting that 35% of the company's European systems revenues will derive from this channel by 1995.

